

AMERICAN GAS ASSOCIATION MONTHLY

January 1927

Volume IX

Number 1

Gas Solves a Heating Puzzle in Denver

By O. O'DONNELL

The Gas Industry and the A. G. A.

By HERR LUDWIG

25,000 People Learn About Gas

A Revolutionary Development in Gas Manufacture

By CHARLES J. RAMSBURG

Gas Scores When Baking Cores

By R. G. VAN GUNDY

Comparative Financial Statistics of 234 Manufactured Gas Companies



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VOLUME IX

JANUARY, 1927

NUMBER 1

CONTENTS

	Page
APPLIANCE SELLING BY GENERAL EMPLOYEES	3
J. Earl Jones	
NEW YORK AMENDS SANITARY CODE	5
A REVOLUTIONARY DEVELOPMENT IN GAS MANUFACTURE	7
C. J. Ramsburg	
GAS SOLVES A HEATING PUZZLE IN DENVER	11
O. O'Donnell	
COMPARATIVE FINANCIAL STATISTICS OF 234 MANUFACTURED GAS COM- PANIES	13
EDITORIAL	17
GAS SCORES WHEN BAKING CORES	19
R. G. Van Gundy	
WINDOW DISPLAY SHOULD DO MORE THAN SELL	23
Coleman McCampbell	
THE GAS INDUSTRY AND THE A. G. A.	25
Herr Ludwig	
SMALL ROTARY PUMP SOLVES DRIP PROBLEM	28
H. W. Nicholson	
"FROM COAL PILE TO FINAL BALANCE SHEET"	29
ECONOMIC ASPECTS OF THE CONVERSION OF COAL INTO SMOKELESS FUELS	31
Horace C. Porter	
25,000 PEOPLE LEARN ABOUT GAS	35
TEACHING THE HOUSEWIFE THE PROPER USE OF GAS	39
C. B. Truesdell	
U. G. I. TO MARK BIRTHPLACE OF HYMN	41
J. M. Bennett	
IF THEY CAN'T COME TO YOU, GO TO THEM	49
CHARLESTON'S NEW SUNDRY SALES SYSTEM	51
H. H. Pace	
A PENNY SAVED FOR THE GAS CUSTOMER IS A CUSTOMER SAVED FOR THE GAS COMPANY	53
DAYTON ENTERTAINS THIRTY-FOUR THOUSAND	55
WHY A SPEAKERS' BUREAU	57
H. Howard Smith	
SELLING THE ARCHITECT SIMPLIFIED	59
Robert E. Mahn	

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Our Own Who's Who



XX

Walton Clark

BORN in Utica, N. Y., April 15, 1856. Was educated in the public schools of Utica. At the age of seventeen years became associated with New Orleans Gas Light Co. in New Orleans, La., going to Chicago, Ill., in 1887, where he was engaged in the same line of work, and to Kansas City in 1888. The same year he removed to Philadelphia to accept a position with The United Gas Improvement Company, subsequently advancing to the position of vice-president of that company. In 1904 the Stevens Institute of Technology conferred upon him the honorary degree of M.E., and in 1911 the University of Pennsylvania conferred upon him the honorary degree of Doctor of Science. Elected President of The Franklin Institute of the State of Pennsylvania in 1907, and continued in the presidency for seventeen years. Has served as President and director of various companies engaged in public utility work. Was President of the American Gas Light Association, and later of the American Gas Institute. Is a member of American Society of Mechanical Engineers, American Institute of Electrical Engineers and American Society of Mining and Metallurgical Engineers, and other scientific bodies. He has been a member of the board of trustees of several educational institutions and was active in the organization of a free correspondence school for gas works employees, and was chairman of its Board of Trustees for twenty-five years.

AMERICAN GAS ASSOCIATION MONTHLY

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No. 1

Appliance Selling by General Employees

One Gas Company Finds that the "Employee Salesman"
Can Produce Gratifying Results

By J. EARL JONES

Assistant Sale Manager, The Portland Gas & Coke Co., Portland, Ore.

WHAT was once a cherished dream—making every employee of the gas company a salesman of our service—has now become a reality as shown by an analysis of sales made by general employees during the first ten months of this year. One hundred and seventy-four employees outside of the sales department participated in a volume of gross sales aggregating \$55,690.74. Of this amount about 25 per cent represents direct sales by employees and the other 75 per cent covers appliance sales made by the sales department on prospective information furnished by the general employees. A very substantial sum of \$1475.24 was paid these loyal workers for their part in this program.

That those employed in all the departments of our organization can sell was clearly demonstrated during our active employee sales campaign on preferred stock. Before the inauguration of this campaign our employees did not realize their selling possibilities. Some of our more modest employees, of whom we had heard little in the past, came rapidly into the limelight and proved to be our outstanding sales representatives in preferred stock. What more logical development could take place than the conversion of our large preferred stock

selling employee group into a permanent general employee selling force on gas appliances and service? To this end we have turned our efforts with very gratifying results.

It used to be the common belief that a successful salesman was one who wore a high linen collar, loitered about hotel lobbies, told funny stories across the counter to the merchants and talked fluently about weather conditions and the various political aspects of our country; but times have changed and a new order of selling has been inaugurated. The successful salesman today is the man or woman who knows his goods, has enthusiasm, zeal and love for his work and his company and is willing to work hard, interviewing prospective customers when other people are sleeping or spending their time unprofitably. It is, therefore, natural that we should find among our large group of regular employees many who are eminently qualified to go out and sell our service. We say "sell our gas service" because that is our ultimate aim. Our thousands of customers cannot enjoy the fullest benefits of modern gas service without using up-to-date gas appliances. Then why shouldn't every employee of the gas company be genuinely interested in providing our customers with the best

service by helping them to select equipment best suited to their needs? Early this year a series of bulletins, sales helps and division group meetings among employees were provided in the interest of appliance sales work.

Without exception the employees have responded to every request made, wholeheartedly and with good results. Some departments by virtue of their particular field of work have had better opportunities to sell appliances than others. Nevertheless, all departments of the company have taken an active interest in selling, as shown by the following figures:

Gross Sales by Departments This Year		
Department	October	1926 to date
Office	\$ 909.90	\$19,556.43
Purchasing	21.50	272.61
Treasury		716.00
Operating	2,596.21	35,154.70
Totals	\$3,527.61	\$55,699.74

It is only fair to say that the operating department has had longer experience in appliance selling than the other departments of our company. The utilization bureau especially has a fine opportunity to meet our customers in their homes when on service calls and installation work, and, as shown by the above figures, loses no opportunity to interest them in better appliances. Likewise the office department in the contract and credit bu-

reaus has an excellent opportunity to discuss better appliances with our customers. While the purchasing and treasury departments have less contact with customers as well as a smaller number of employees, the results are quite gratifying and promise to be better each month.

The reader may not at first realize the importance of general employee selling from the standpoint of appliance units sold. The following table showing the total number of appliances sold according to classifications for the first ten months of this year is very interesting:

Total Appliances Sold During First 10 Months This Year	
Appliances	Units Sold
Water Heaters	380
Gascontrols	41
Manual Water Heater Controls	76
Automatic Water Heaters	8
Ranges	260
Hot Plates	30
Furnaces	14
Boilers	2
Floor Furnaces	49
Radiantfires	29
Kitchen Heaters	7
Washers	11
Miscellaneous, including lights, toasters, coil replacements, etc.	201
Total	1108

While no special contest has been held among the general employees, the contest spirit has been evident as is shown

(Continued on page 30)



Some of the industrial fuel men of the Public Service Electric & Gas Company of New Jersey—Front Row—L. to R.—H. P. Morehouse, H. E. Etter, B. P. Dahlstrom, E. B. Dunkak, B. F. Reimers, J. P. Leinroth, E. C. Durr. Back Row—A. D. Colyer, C. L. Bense, E. A. Atherton, J. J. Mullarkey, W. B. Dodds, H. A. Sutton, L. A. Charles, F. A. Tuttle.

New York Amends Sanitary Code

Action Taken to Insure Ample Supply of Gas for All Appliances in New York City Apartment Houses

SECTION 277 of the Sanitary Code of New York City relating to gas piping has been amended and hereafter every owner, agent or lessee of property must have sufficient gas piping in his building to give the proper supply of gas to his tenants, it has been announced by Health Commissioner, Dr. Louis I. Harris.

Dr. Harris pointed out that in the city there were many old private dwellings that had been converted into apartment houses, with a consequent installation of additional heating and cooking appliances and without change in the size of gas piping. Under these conditions all the tenants in the house were using gas, Dr. Harris said, the demand for gas was so great that some of the appliances did not receive an adequate supply of gas with the result that one or more of the appliances were "gassed out." Later, when the pressure relieved normal, gas flowed through the open burners and into the rooms.

The new ordinance is designed to correct this condition, and at the same time enable people to install gas appliances that they need. The penalty for violating this law is \$500 fine, a year's imprisonment, or both.

The Sanitary Code has been amended as follows:

Section 277. Plumbing and Gas Piping to be kept in good order and repair.

All house drains, house sewers, waste

GAS SERVICE ON SAME PLANE AS WATER SERVICE

GAS service has been placed on the same plane as water service in New York City. The amendment to the Sanitary Code of the Department of Health of the City of New York that was recently adopted calls for essentially the same requirements for gas service as those for water service.

New York has long had a supply of good water, and every measure has been taken to insure residents of apartment houses of an adequate supply. The new amendment gives the same assurance for the use of gas, and will do much to popularize gas service in the minds of New York residents.

Designed primarily to eliminate the accidental asphyxiations that may be caused because of inadequate gas piping in the apartment houses, the amendment will also make it possible for people to install gas appliances they need.

and soil pipes traps and water and gas pipes, in any building or premises shall at all times be kept in good order and repair so that no gases or odors shall escape therefrom and so that the same shall not leak (2), and every owner, agent, lessee or other person having the management or control of any building wherein manufactured gas is used for lighting, cooking or heating purposes shall maintain in the said building a system of gas pipes of a size

sufficient to furnish and supply an adequate volumetric flow of manufactured gas to all such lighting, cooking and heating fixtures or appliances used or intended to be used in the said building or premises; and all vent pipes shall be kept in good order and repair and free from obstructions. (S. C. Sec. 32.)

Material in italics is new.

Contract Awarded for Consumer Survey

CROSSLEY, Inc., of New York, has been awarded the contract for making a national consumer survey of the gas industry's market. The first step will be the selection of two test areas and if reports covering these areas are satisfactory the survey will be expanded to include representative cities in all parts of the country.

As explained previously the survey is deemed to be a necessary preliminary to any program of national advertising which may be undertaken in the future.



Past and Future: Above is shown the New York Consolidated Gas Company's float in the recent Broadway Celebration Parade. Below is a two-foot star-shaped gas burner recently on display in the window of the U. G. I. Company in Philadelphia. The card reads: "Centennial relic—Herman Kornbau used this gas burner as a window display in his store in 1876."



A Revolutionary Improvement in Gas Manufacture

By C. J. RAMSBURG

Vice-President, The Koppers Company, Pittsburgh, Pa.

IN October, 1925, there was placed in operation at the Water Gas Plant of the Chicago By-Product Coke Company, a subsidiary of The Koppers Company, a water-gas generator supplied with a new grate and base, mechanically operated. This has been the subject of many experiments since that time. For several months this machine has been operating with success.

This invention is the idea of C. W. Andrews, of Duluth, Minn., and Herman A. Brassert, of Chicago, worked out in conjunction with W. B. Chapman, of the Chapman Engineering Company. The construction has been carried out by The Koppers Company through its subsidiaries, The Western Gas Construction Company and the Chicago By-Product Coke Company.

While this generator base and its successful operation are of great importance, one other process in operation must also be taken care of in order to secure continuous and uninterrupted gas production. This problem has also been solved by the invention of the Howard automatic charger. This apparatus is the invention of A. C. Howard, of New York, and Thos. W. Stone, of The Western Gas Construction Company, and has been in operation at the plant of the Northern Indiana Gas & Electric Company at Fort Wayne, Indiana, for more than a year. While these two processes have not yet been combined and operated in one generator, a generator including both processes is now under construction and is expected to be in operation during February, 1927. It may be said, without fear of adverse comment, that the combination of these two elements is devoid of any possible difficulty. It is believed



Fig. 1: Automatic charger installation at Fort Wayne, Ind.

the achievement is revolutionary in its scope and effect.

The fundamental principles of carburated water-gas manufacture of today are essentially the same as when Prof. Lowe built the first plant at Phoenixville, Pa., in 1874. The increased knowledge of the equilibria of the reactions involved, advances in information on heat transfer and thermodynamics, the improvement in materials available, the advances in mechanical design—all the fruits of carefully planned and patiently pursued research—have made possible the construction of water-gas machines of exceedingly ingenious design and the operation of them at capacities and efficiencies unthought of not only by Lowe, but by his successors in the gas industry up to a relatively recent day.

It became apparent from the use of a crude measuring device, that great im-

Abstract of paper presented at International Bituminous Coal Conference, Pittsburgh, Pa.



Fig. 2: Charging generator, showing charging larry and distributor.

provements could be secured by measuring accurately the air and steam being delivered to the set. Measuring devices were developed, the results quickly indicating the necessity for greater blast pressures, for definite heat control by means of pyrometers and finally the necessity for hydraulic control of operating valves. With the introduction of the hydraulic control, the automatically operated generator was a natural consequence.

The working out of the initial problems of air and steam measurement, heat control, hydraulic operation and automatic control was largely the work of John Hawley Taussig, deceased, of The United Gas Improvement Company, of Philadelphia. To him the gas industry is greatly indebted.

AUTOMATIC CHARGING

With automatic control, with heat regulation with high capacities, with quantities of steam, air and oil carefully measured, there was available for the gas industry an efficient and dependable source of gas supply. In this apparatus, however, there were two points of marked inefficiency and two operations which required not only extraordinarily severe labor, but also introduced conditions which decreased capacity, reduced efficiency and, by making it necessary to cease operations completely for a number of hours per day, made a machine which was available for only a portion of the time.

The efforts of engineers for the past ten years have been directed towards solving the problems introduced by intermittent charging and hand clinkering, but only within the past year have these efforts met with marked success.

Messrs. Howard and Stone, in conjunction with The Western Gas Construction Company, have designed and constructed a continuous automatic charging device, the success of which has been demonstrated by nearly a year of successful operation.

TABLE I
9 Ft. Western Gas Set—Using Oven Coke

	Without Automatic Charging	With Automatic Charging
Total Hours Running.....	152.7	142.33
Make Per Hour—M. cu. ft.....	120.9	125.6
Make Per Hour per sq. ft. Grate Area—cu. ft.....	3,140	3,260
Fuel per M. lbs. (coke).....	29.7	28.6
B.t.u.'s. per gallon of Oil in Gas.....	98,600	102,800
Oil per M. gals.....	2.22	2.38
		(2 13 gal for 464 B.t.u. gas)
Steam per M. lbs. (approximate).....	35.6	35.9
Percent Down Steam.....	34.5—42.9%	34.5%
B.t.u.'s. per cu. ft. in Carburetted Gas.....	464	486.4
Cycle (Blast).....	81	85
(Run).....	181	175

The Howard automatic charger can be fitted over the charging hole of any standard generator and can be quickly replaced by the regular door as desired. The fuel is delivered from an overhead bin into the weighing bucket, which at a pre-determined load discharges onto the feed belt. The feed belt in turn delivers the fuel to the charger only during each blast period, at which time the bin valve of the charger is open.

During the down-run the fuel charge is dropped from the charger bin onto a spreader valve which has previously been lowered into the fire. When the charge is released, the spreader is automatically raised from the fire and again seals the charger bin from the fire.

Automatic charging, like automatic control, offers many advantages in the operation of a water-gas machine. A uniformly high, active fire is maintained by the addition of small amounts of fuel during each down-run. The four or five minutes per hour shut-down usually required for charging is eliminated. This results in one more cycle per hour, which in the case of an eleven-foot generator means 15,000 cu.ft. of gas per hour additional capacity. The top of the fire is kept relatively cool, which tends toward efficiency in blasting without reduction in gas-making capacity. Smoke in charging is entirely eliminated. Better steam de-



Fig. 3: Drive mechanism of self-clinking generator base.

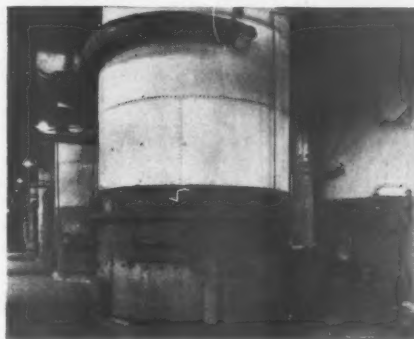


Fig. 4: Continuous clinking with self-clinking base.

composition is obtained because of the better fuel bed condition, and clinker on the side walls is reduced because of the fuel distribution.

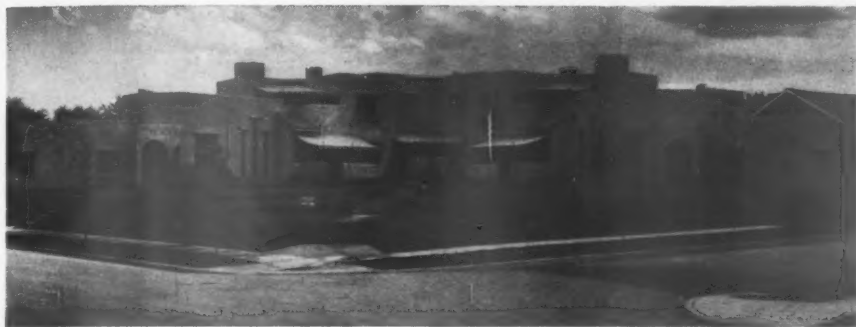
Table I is a comparison of the results obtained at the Fort Wayne plant in the same nine-foot reverse air blast set, without and with the Howard automatic charger. The results are not from a special test, but were obtained in the regular operation of the plant.

The idea of continuous and automatic weighing is not new, but it is our belief that the Howard charger is the first charger to be developed which has all the necessary functions properly and thoroughly worked out to a conclusion, and one which permits not only the proper and timely inspection of fire control and conditions, but one which may be completely removed and hand charging resorted to in case of necessity.

A-B-C SELF-CLINKERING GENERATOR BASE

With the adoption of the Howard charger but one operation remained to be raised to the level of automatic operation; that is, clinking. This problem has been solved by the development of the A-B-C self-clinking generator base, and its efficiency, effectiveness and generally satisfactory operation have been demonstrated by nearly a year of operation at the Chicago By-Product Coke Company, while increasing the daily gas output per unit.

From a labor standpoint alone this development is revolutionary. Figures 3



Gas heat keeps the inhabitants of this house warm

Gas Solves a Heating Puzzle in Denver

**Proves Better Than Oil as a House-Heating Fuel
for Odd-Shaped Apartment House**

By O. O'DONNELL

Public Service Company of Colorado. Denver, Col.

THE problem of successfully heating one of the oddest shaped apartment houses in Denver has been solved by the Public Service Company of Colorado. Again, gas has proved the best house heating fuel.

The building shown in the photograph contains six apartments, each of which has private front and rear entrances. Two of the apartments have one bed room, two have two bed rooms and two have three bed rooms.

Interior artistic requirements would not permit the use of radiators so the original builder arranged a hot-air pipe for the individual apartment basement to each room of the apartment. Heat for these air pipes was supplied by blowing through a copper-finned radiator, air taken out of the apartment through a single floor opening. A blower supplied the necessary circulation. Current for the blower was controlled by either of two switches, one of which was placed in a bed room and the other in the living room. If the temperature rose to the desired point, the occupant could shut off the blower and thereby reduce the delivery of heat to the rooms.

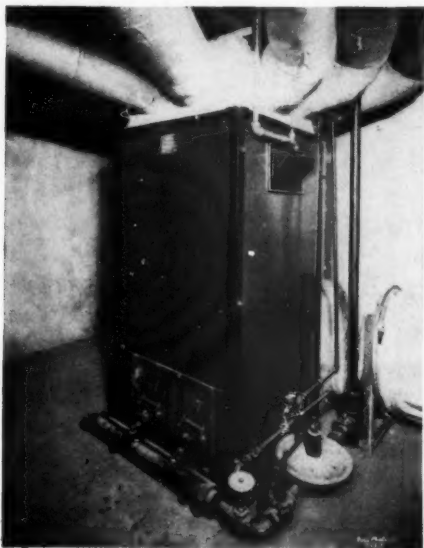
The basement of one of the apartments was slightly larger than any other, and

this extra space was used to accommodate two flash type boilers which were fired by oil burners. Automatic control by a pressurestat regulated the fire. After lighting the fire in the late summer months, steam pressure in the boiler would be maintained until the first warm weather of spring.

Due to the fact that there was an appreciable distance between the boiler and the particular steam coil which supplied heat for either of the end apartments, the radiators had to be placed as high as possible in order that condensate could return to the boilers. Having the radiators suspended from the ceiling necessitated placing the blower on an angle iron mounting which caused an appreciable vibration noise throughout the building.

Noise of intermittent firing of the oil burner made the apartment immediately above the boiler room undesirable. Because of structural details it was necessary to locate several warm air pipes in exterior walls, with the result that air, starting from the basement at only the temperature of low-pressure steam, was pretty cold on reaching a second-story room.

Even a casual inspection of the original plant would disclose the ease with which



One of the gas-fired furnaces that replaced the oil-fired furnaces

gas would eliminate many of the troubles. The noise and odor of oil burners could have been disposed of by placing gas flames under the boilers as they stood. It was evident, however, that the other troubles would still exist, and in addition the cost of maintaining pressure during mild or moderate weather would be an appreciable item.

Warm air furnaces offered a pleasing solution. Six furnaces would be required, one in each basement. A master meter was placed in the original boiler room and the original live steam line was used as a fuel run to carry gas to each furnace location, that is, to each of the other five basements.

Since a warm air furnace takes its cold air at the floor line, the blowers were lowered and fixed to the concrete floor. In addition to this advantage, the new source of heat permitted warm pipes to go directly from the top of the furnace to the various sides of the room, and the alignment of the pipes was improved. Warm air leaving the original radiator was travelling in a horizontal direction and all pipes to upper rooms had to be

connected to meet this current of air.

In place of the two switches originally controlling the blower, a standard heat regulator, without clock, was placed in each dining room, connected to control both the gas flame and the blower. During mild weather no heat at all was needed and none was used.

Gas furnaces have removed the noise and odor nuisance; they have permitted automatic control with corresponding saving in fuel cost; they have provided a source of temperature sufficiently high to counteract the cooling effect previously apparent in pipes which passed through exterior walls. Blower noise has been quieted.

The organization of the Public Service Company is such that day and night service is available in case anything should happen to prevent proper operation of any of the furnaces.

During vacancies the realtor who has charge of renting the building sets the thermostat at some low temperature and keeps the building ready for immediate occupancy without the expense of draining the entire plumbing system. It is suggested as a possibility that some day the building will be sold to the occupants, making what is known as a co-operative apartment, and if this happens, each occupant can pay his own fuel bill.



A safe background—the gas department of the Adirondack Power and Light Company at Schenectady, N. Y., attached red danger signs to their persons to avoid accidents

Comparative Financial Statistics of 234 Manufactured Gas Companies, 1924-25

Prepared by the Statistical Department of the
American Gas Association

IN the second year of the Association's Statistical Department, we are able to present statistics covering 234 gas companies who replied completely on the financial inquiries for the years 1925-1924. These 234 companies sell 65 per cent of the total manufactured gas in the United States and represent a gain of 21 companies over the report submitted for 1924-1923.

NINE PER CENT INCREASE IN NET INCOME IN 1925

The year 1925, while it did not produce large increases in the sales of gas, nevertheless affords the industry a basis for satisfaction from the financial standpoint.

Table 1 gives a combined income statement for 234 gas companies, representing 65 per cent of the total sales of manufactured gas for 1925. Total gross operating revenue of 1925 for this group increased \$9,077,650 or 3.4 per cent. Economies in operations for the year 1925 reduced the increase in operating expenses (exclusive of taxes) to \$4,362,884 or 2.3 per cent.

In spite of a very substantial increase of 6.1 per cent in taxes, income from operations shows an increase of 5.8 per cent,

clearly reflecting the results of good management in promoting efficient operation.

Non-operating revenue shows a substantial increase. While a number of factors are involved in this item it principally indicates the strong financial condition of these companies through wise investment of surplus funds in income-bearing securities of other public utilities. This is reflected in the substantial increase shown in net income available for dividends and surplus of nine per cent for the year 1925.

COMPANIES EARNED INTEREST CHARGES MORE THAN THREE TIMES

It will be noted that net income for 1925 (\$60,123,340) after deductions for fixed charges represents 21.1 per cent of total gross operating revenue, a striking testimony to the value of gas company securities to the investor. Gross income (\$87,917,787) shows that these companies earned more than three times their interest charges (\$27,794,447).

OPERATING RATIO CONTINUES TO IMPROVE

Continued improvement in efficient operation is reflected in the operating ratio (ratio of operating expenses to gross op-

TABLE 1
COMBINED INCOME STATEMENT OF 234 GAS COMPANIES FOR 1925 COMPARED WITH 1924
Representing 65 % of the total annual Sales of Manufactured Gas in the U. S.

	1925	1924	Increase	% Increase
Gross Operating Revenue				
Sales of Gas	\$275,035,521	\$265,957,871	\$9,077,650	3.4
Miscellaneous Operating Revenue	10,195,523	9,858,128	337,395	3.4
Total Gross Operating Revenue	285,231,044	275,815,999	9,415,045	3.4
Operating Expenses	193,880,170	189,517,286	4,362,884	2.3
Taxes	24,342,567	22,946,696	1,395,871	6.1
Total Operating Expenses	218,222,737	212,463,982	5,758,755	2.7
Income from Operations	67,008,307	63,352,017	3,656,290	5.8
Non-Operating Revenue	20,909,480	17,411,223	3,498,257	20.0
Gross Income	87,917,787	80,763,240	7,154,547	8.9
Income Deductions	27,794,447	25,588,847	2,205,600	8.6
Net Income Available for Dividends and Surplus	60,123,340	55,174,393	4,948,947	9.0
Operating Ratio (Per cent)	76.5%	77.0%	-.5%	

*Decrease

TABLE 2
COMBINED INCOME STATEMENT PER THOUSAND CUBIC FEET OF GAS SOLD
 1925 and 1924
 234 Gas Companies

	1925	1924	Increase or Decrease	% Increase or Decrease
Gross Operating Revenue				
Sales of Gas	1.016	1.022	— .006	— .6
Miscellaneous Operating Revenue	.038	.038	— .000	—
Total Gross Operating Revenue per M	1.054	1.060	— .006	— .6
Operating Expenses per M	.716	.729	— .013	— 1.8
Taxes	.090	.088	+ .002	+ 2.3
Total Operating Expenses per M	.806	.817	— .011	— 1.3
Income from Operations per M	.248	.243	+ .005	+ 2.1
Non-Operating Revenue " "	.077	.067	+ .010	+14.9
Gross Income	.325	.310	+ .015	+ 4.8
Income Deductions " "	.103	.098	+ .005	+ 5.1
Net Income Available for Dividends and Surplus	.222	.212	+ .010	+ 4.7

erating revenue). For 1923 on 213 companies this ratio was reported as 78 per cent. Table 1 shows for 1924 an operating ratio of 77 per cent and for 1925, 76.5 per cent.

SUBSTANTIAL INCREASE IN TAXES

The ratio of taxes to gross revenue from sale of gas for the 234 companies is 8.8 per cent for the year 1925. The taxes paid by the above companies (\$24,342,567) practically equals their income deductions (\$27,794,447) and represents approximately 40 per cent of the net income available for dividends and surplus. This tax burden must, of course, be passed on to the consumer, and it will be noted from the above table that it shows more than twice the ratio of increase for 1925 than the remaining operating expenses do.

While the companies report total taxes without segregation as to Federal, State, Municipal, etc., there is a marked indication of confusion and inequality at present existing in taxation in various localities which shows the need for the study being made of this subject by the Association's committee on Taxation.

INCOME STATEMENT PER THOUSAND CUBIC FEET OF GAS SOLD

Many of the important trends shown by a comparison of the 1925-1924 figures of the 234 gas companies are brought out by indicating their combined income

statement *per thousand cubic feet of gas sold*, as shown in Table 2.

CONSUMER PAYS LESS—COMPANIES EARN MORE IN 1925

Gross operating revenue per thousand cubic feet of gas sold continued to decline in 1925, the companies collecting six mills less for every thousand cubic feet of gas sold to consumers than they did in 1924.

On the other hand, operating expenses per M (exclusive of taxes) decreased 1.8 per cent or more than three times the percentage decrease in operating revenue.

Taxes increased heavily, but despite this the 234 companies increased their income from operations over two per cent, the companies receiving in operating income half a cent additional for every thousand cubic feet of gas sold. After addition of non-operating revenue and deduction of interest charges the net corporate income per thousand cubic feet shows an increase of 47 per cent over 1924.

An industry that can increase its net income and, at the same time, reduce the unit cost of its product to the consumer is enjoying prosperity under the happiest conditions. Further application of the scientific principles of rate making and expansion of undeveloped fields in the application of gas to industrial operations—water heating, refrigeration, etc.—should tend to sustain and even accelerate this very healthy trend.

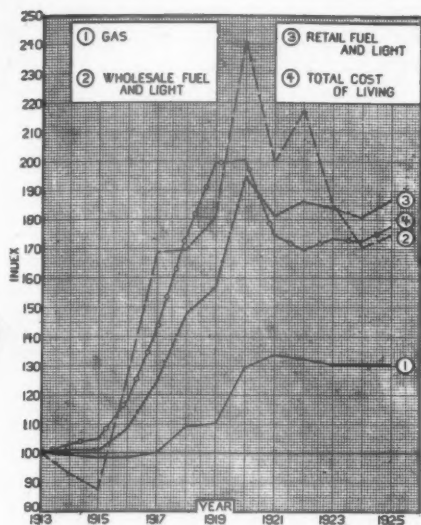


Fig. 1

CAPITALIZATION OF MANUFACTURED-GAS INDUSTRY

While the Association has heretofore confined itself to publication of financial statistics applying only to the two hundred odd companies that have replied completely on all financial data required, it has been the aim of the department to publish eventually reliable estimates on the more important items as they apply to the industry as a whole.

After a careful analysis of all returns received, it has been possible to assemble sufficient data to submit estimates covering the entire industry on the items shown at the bottom of this page.

The first item on capitalization is considerably lower than former estimates published by various sources. It should be noted, however, that the figures below published represent the first opportunity to base such an estimate on any considerable data where the capitalization of combined gas and electric companies could be segregated to the gas depart-

ment. Also the above figure on capitalization is strictly confined to the manufactured-gas industry and does not include capitalization of natural-gas companies, coke-oven companies, or manufacturers of gas making or burning equipment.

The total gross operating revenue for 1925 would indicate that it takes the industry approximately five years to turn over its capital.

It is hoped that the publication of the above figures at this time will tend to clarify the confusion that seems to exist in published estimates of the capitalization of the manufactured-gas industry.

RATES FOR DOMESTIC CONSUMPTION

(Fig. 1)

From time to time the Association has been in receipt of inquiries from members and others as to the "average rate" for gas used for domestic purposes. Manifestly there is no such thing as an average rate for gas, because of the many differing forms of rates; however, the accompanying chart has been prepared to indicate the trend in rates for gas for domestic consumption compared with the trend in the cost of living, etc. Curve No. 1 represents the trend in domestic rates for gas based on 100 selected cities and using 1913 as a base. Index figures were compiled by the A. G. A. Statistical Department.

Curve No. 2 is based on index figures of the U. S. Bureau of Labor and represents trend in wholesale cost of fuel which the gas companies would have to pay during a corresponding period. Curve No. 3, taken from a similar source, illustrates the trend in the retail cost of fuel and light, and Curve No. 4, also from the Bureau of Labor statistics, covers the total cost of living. The chart presents a most interesting comparison of the trend in the cost of gas service to the

1. Total capitalization of the gas industry
2. Gross revenue from sale of gas
3. Miscellaneous operating revenue
4. Total gross operating revenue

	1925	1924
1.	\$2,400,000,000	\$2,200,000,000
2.	452,000,000	438,000,000
3.	13,000,000	
4.	465,000,000	

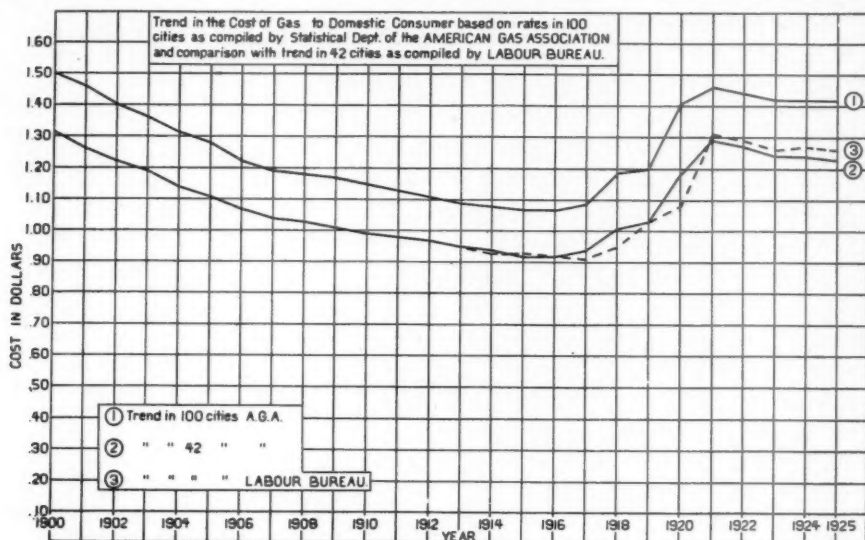


Fig. 2

FALLACY OF AVERAGE PRICE FOR GAS

Fig. 2

home as compared with the general cost of living trend and the retail cost of other fuels.

It will be noted that the peaks on all curves generally correspond in the year 1919 when the cost of gas was 30 per cent higher than in 1913, the wholesale cost of fuel to the companies was 140 per cent higher than in 1913, the retail cost of fuel was 95 per cent higher than in 1913 and the total cost of living was 100 per cent higher than in 1913. While the cost of gas further increased in 1920 to 33 per cent, this additional increase was ironed out in 1923 and remains practically 30 per cent in 1925.

The real necessity for the relatively slight increase in the cost of gas is clearly demonstrated by the trend shown in the wholesale cost of fuel which increased in cost to the companies more than four times the relative increase in the cost of gas to consumers. The relative cost of gas service in the family budget was a negligible quantity in 1913, and this negligible proportion of the family expense only increased at its highest point one-third of the percentage increase in the general cost of living.

While the Association feels that it is possible to make comparisons on trends based on index figures as shown in the above curve, we are including with this Bulletin a chart which illustrates the impracticability of considering any average price of gas except as it illustrates trend. The second chart presents two curves. Curve No. 1 is based on the average price of gas in 100 selected cities assuming a domestic consumption of 3000 cubic feet and taking into consideration any rate changes occurring during the year among the 100 cities selected.

Curve No. 3 (the dotted curve) starting with the year 1913 represents the average price of gas to domestic consumers in 42 selected cities and is based on statistics published by the Bureau of Labor. The Bureau of Labor statistics are based on price of gas determined at a definite period in the year, and do not take into consideration rate changes during the year. Curve No. 2 was prepared at Association Headquarters based on the same 42 cities and extending from the year 1900 to 1925.

(Continued on page 60)

EDITORIAL

By ALEXANDER FORWARD

Managing Director

Dealing in Futures

PROBABLY the most significant feature of the International Bituminous Coal Conference held recently at Carnegie Institute in Pittsburgh, Pa., was the almost revolutionary attitude taken toward coal, long considered the primary and ultimate fuel. This new attitude concerns coal as a raw material rather than a finished product, a material high in potential fuel value, but whose highest degree of usefulness is reached only when carbonized. This view is supplementary to that long held by the gas industry. At the present time coal processing methods give valuable products, and, if the attitude taken at Pittsburgh is an index, the carbonization methods of the future will transform the gas plant to a cornucopia from which will come liquid fuel for internal combustion engines, solid smokeless fuel and a myriad of other essential products, all in addition to the gas.

Whether or not the far-sighted see in this attitude the day when coal will never be burned in its raw state is not for the purpose of this discussion important. The value of the Conference was not the progress reports made on low temperature distillation; rather, it was this new attitude. Likewise, this new attitude concerns more than the economic advantage the gas industry will gain by making obsolescent the burning of raw coal, still far too prevalent. It concerns the public health, because of the smoke nuisance. It concerns the public wealth because of the greater efficiencies that can be realized.

THE MONTHLY cannot say that too much importance is being placed on low temperature carbonization. THE MONTHLY cannot judge the importance of the developments in Europe. No one can. The important factor is the new scientific attitude. It will benefit the gas industry incidentally. It will benefit civilization directly.

Points West

THE close relationship between the American Gas Association and the gas industry was indisputably proved by the decision to hold the ninth annual convention in Chicago, Ill. The A. G. A. is no section organization, and to limit the annual meeting place would be to deprive a great many loyal and active members of the privilege of actual contact with the national convention.

The decision to go to Chicago was warmly received by all members. The Mid-Western and Western members were pleased because of their quite pardonable desire to have the convention in their territory, and the Eastern members were pleased because they realized that to limit the meeting place would be to defeat one of the primary purposes of the A. G. A.

Chicago brings its problems, but the splendid success of past conventions is testimony to the fact that these problems will be solved. Already the Association Headquarters staff is working on the 1927 convention, and it is the general feeling that the Chicago meeting will break all records.

A Revolutionary Improvement

(Continued from page 10)

wake, which fills up quickly without disorganizing the fire bed.

The A-B-C generator is the first to make use of the principles stated above. Its success, however, is partly due to a new method of operation which had to be developed before clinkers could be prevented. When it was found that nothing about the machine would break, except the shearing pins, no matter what the load or the temperature imposed, it was discovered that it could be operated at a high temperature with an unusually large amount of down-run steam (70 per cent to 80 per cent) and with practically no ashes upon the grate. This resulted in a more concentrated fire than ordinary practice and a portion of the ash in the fuel was made sufficiently fluid in the hottest zone to permit it to run well down into the zone below it before cooling sufficiently to become solid. In this way the liquid ash reached the immediate neighborhood of the agitating beam before solidifying, and the motion of the beam was found to be sufficient to prevent the cooling liquid from agglomerating in large masses. The beam, therefore, does not have to break up large clinkers so much as it has to prevent their forming. Consequently, the power required is very small, being only about four h.p. on the peak of the working stroke of the ratchet and pawl drive. The equipment, however, is built strong enough throughout so as to withstand 20 h.p. should it be required.

Most of the coke used has been from Kentucky coal mixtures having a high fusing point of ash, 2600 deg. and over. Cheaper fuels having a lower fusing point may work easier.

The grate is provided with $\frac{3}{8}$ in. vertical slots tapering to $\frac{5}{8}$ in. on the underside. These slots are spaced as close together as possible. When blasting at the rate of 12,000 ft. of air per minute the resistance of the grate is about $2\frac{1}{2}$ in. and usually the resistance of the 9-ft. deep fire bed above it is an additional 16 in. This

machine has operated for weeks at a time without a change in the pressure drop throughout the fire bed of more than 3 in. from the above average. A good deal of attention is paid to the blast pressure gauge, as everything is sure to be going all right as long as the pressure drop through the fire bed remains normal. Should the pressure drop increase materially the temperature of the fire is increased by less up-steam or more down-steam, or more blast as the situation seems to require. However, during normal operation changes in the cycle are seldom required.

Another feature of this generator is the two concentric chambers under the grate. The inner chamber is for the passage of the gases, and is about two feet less in diameter than the inside of the generator. It was found that restricting the gaseous currents to the limits of the inner chamber deters them from concentrating along the walls and assists in maintaining uniformity. The outer chamber is for ash removal and is closed to the flow of gases. Two adjustable plows, one on each side of the generator, discharge into it.

In the flat-bottom type of generator the ashes are removed every eight hours, requiring eight minutes each time. In the cone-bottom type this time will be greatly reduced. The total time required for ash removal and other causes has averaged about three-quarters of an hour per day. It is expected that in the new cone-bottom type the time lost will be about one-quarter of an hour per day.

No hand poking is ever required and practically no clinkers are made. If clinkers do occur, they will be located on the refractory lining just above the water jacket and may be melted off before they become objectionable, by making the fire a little hotter.

The fire is withdrawn once a month, at the time the carbureter is rechecked, and the generator is given a thorough inspection. The refractory lining has been

(Continued on page 61)

Gas Scores When Baking Cores

Advantages of Gas Fuel Easily Apparent in Study of Conditions That Have To Be Met

By R. G. VAN GUNDY

Pacific Gas and Electric Company, San Francisco, Cal.

THE qualities desired in cores are easy to sum up and hard to secure. Some of the characteristics wanted are strength with low cost of binder, a smooth surface with free venting, resistance to wash and pressure of molten metals, together with the ability to crush and clean out readily. Cores should throw off but little gas in baking or in use, should be strong enough to withstand any necessary handling while green, bake quickly and not absorb moisture when stored. Some of these demands are conflicting, and a satisfactory compromise is sometimes difficult to secure.

In order to produce good cores the coremaker should understand why each material is used. Many items enter into

the selection of materials. Some of them are: Character of metal, pouring temperature, size and section of metal in casting, and size and section of core.

A sand should be used which has a low percentage of free clay and which is free from lime, alkalis, silt, and vegetable roots. The lime and alkalis flux the sand at high temperatures and may cause the core to buckle, and parts of the core may spall off and cause dirty castings. Vegetable matter burns at low temperatures and forms some gas, while the silt fills the voids and stops free venting of the sand. The use of coarse or fine sand depends on the class of work to be done. Fine castings call for sand whose grains should be small and even in size. The

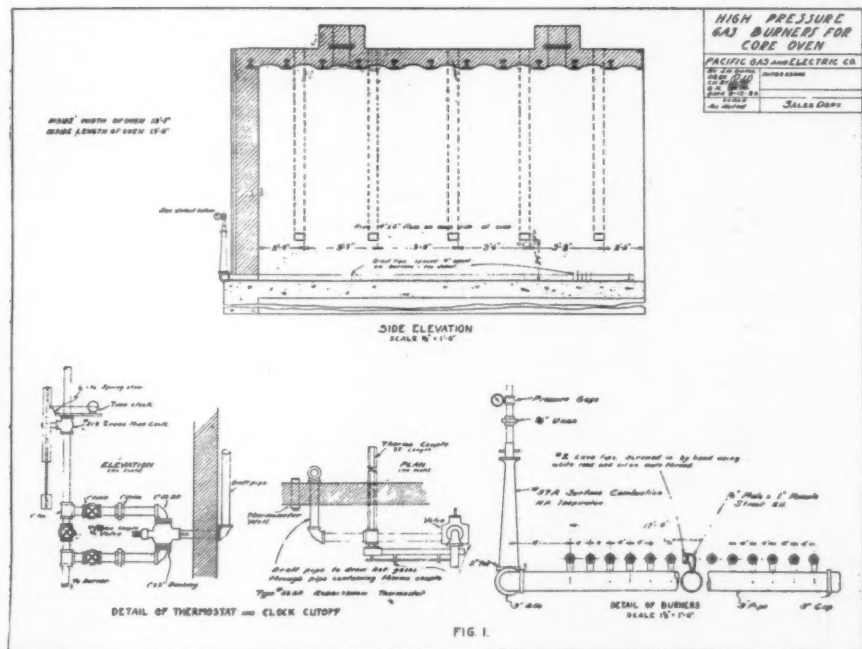


Figure 1

TABLE I
TABULATION OF DATA ON OPERATION OF CORE OVEN WITHOUT INSULATION
 Using 550 B.t.u. High Pressure Gas, Surface Combustion Inspirators and Manifold Burner

Date	Oil Sand	Approximate weight of green cores Compound	Total	Gas used Cubic feet at 6" pressure	Operating Time	Gas Pres- sure at start	Operation Holding Pressure	Time to reach holding temp. (380°F.)	Remarks
4- 5-26	3610 lbs.	1270 lbs.	4880 lbs.	5380 cu. ft.	4 hrs. 10 min.	5 lbs.	3 lbs.	2 hrs. 40 min.	
4- 6-26	4099 lbs.	1886 lbs.	5985 lbs.	5050 cu. ft.	4 hrs. 15 min.	5 lbs.	2½ lbs.	2 hrs. 45 min.	
4- 7-26	4500 lbs.	142 lbs.	4642 lbs.	4870 cu. ft.	4 hrs.	5 lbs.	3 lbs.	2 hrs. 45 min.	Temp. of oven 8 A.M. next morning 148°F. Very small load
4- 8-26	1650 lbs.	55 lbs.	1705 lbs.	4740 cu. ft.	4 hrs.	5 lbs.	3 lbs.	2 hrs. 30 min.	
4- 9-26	2400 lbs.	43 lbs.	2443 lbs.	4500 cu. ft.	4 hrs.	5 lbs.	2½ lbs.	2 hrs. 30 min.	
4-14-26	3640 lbs.	20 lbs.	3660 lbs.	4900 cu. ft.	4 hrs.	5 lbs.	3 lbs.	2 hrs. 40 min.	
4-15-26	3120 lbs.	10 lbs.	3130 lbs.	5000 cu. ft.	4 hrs. 30 min.	5 lbs.	2½ lbs.	2 hrs. 30 min.	
4-16-26	4850 lbs.	47 lbs.	4897 lbs.	5120 cu. ft.	4 hrs.	5 lbs.	3 lbs.	2 hrs. 40 min.	
Total	27869 lbs.	3473 lbs.	31342 lbs.	39560 cu. ft.	Total weight of cores dried 31342 pounds Total number of cubic feet of gas used 39560 1.26 cubic feet of gas used per pound of green cores				

grains of sand should be of uniform size, whether the work to be done is fine or heavy.

The coremaker should understand the use of binders. Binders are used to hold together effectively the individual grains of sand, so that the core remains intact and rigid until a sufficient amount of the liquid metal in the mould has set, that is, until the metal will no longer flow or the casting loses its shape. The core must be of such structure that it will collapse and crumble at the proper time, allowing for contraction of the casting. In order to clean the casting the core must lose its binding qualities.

The gases produced from various core ingredients are the elements in producing castings that give the foundryman considerable trouble. The use of good binders will reduce the formation of this gas.

Some of the qualities of good core binders are: Uniformity, non-gumming, small gas production and rapid combustion. The casting should be allowed to contract when cooling, it should not be hygroscopic, and should dry thoroughly to the center of the core.

There are several oils used for binding cores. Undoubtedly linseed oil has proven to be the best on account of its high binding power and flowing qualities. It is used mostly by the special core oil manufacturers as the base for their mixture. China wood oil is an ideal drying oil and has a good film value, that is, it flows readily over each grain of sand. The Soya bean oil, another Chinese oil, is used extensively with linseed oil.

Sand cores are made up of moist sand and a core binder. The moisture is added to give adhesion at room temperature and

TABLE II
TABULATION OF OPERATING DATA FOR CORE OVEN WITH BRICK INSULATION
 Using 550 B.t.u. High Pressure Gas, Surface Combustion Inspirator and Manifold Burner

Date	Oil Sand	Approximate weight of green cores Compound	Total	Gas Used Cubic feet at 6" pressure	Operating Time	Gas Pressure at start	Operation Holding Pressure	Time to reach holding temp. (380°F.)
5- 5-26	2680	1630 lbs.	4310 lbs.	5140 cu. ft.	4 hrs. 30 min.	4 lbs.	2 lbs.	2 hrs. 15 min.
5- 7-26		2250 lbs.	2250 lbs.	700 cu. ft.	6 hrs.	4 lbs.	2 lbs.	1 hr. 45 min.
5-10-26		7300 lbs.	7300 lbs.	7200 cu. ft.	8 hrs.	4 lbs.	2 lbs.	2 hrs.
5-18-26		7300 lbs.	7300 lbs.	6300 cu. ft.	7 hrs.	4 lbs.	2 lbs.	2 hrs.
5-21-26		14600 lbs.	14600 lbs.	10000 cu. ft.	8 hrs.	4 lbs.	2 lbs.	2 hrs.
5-26-26		15710 lbs.	15710 lbs.	7820 cu. ft.	7 hrs. 10 min.	4 lbs.	2 lbs.	2 hrs.
5-27-26		17200 lbs.	17200 lbs.	6030 cu. ft.	6 hrs.	4 lbs.	2 lbs.	2 hrs.
6-11-26		34300 lbs.	34300 lbs.	5580 cu. ft.	7 hrs.	2 lbs.	1½ lbs.	1 hr. 15 min.

NOTE:—The operating time varied in the above tests with the size of the cores being dried. In some instances large cores had to be run twice to thoroughly dry them. Usually the car was loaded with both partially dried and wet or green cores and in only one instance (5-5-26) were oil sand cores dried with compound cores. On June 11, 1926, one large core weighing approximately 34,300 pounds which had been partially dried was completely dried. Therefore, it did not require as much time or gas to reach the holding temperature.

*Figure 2*

to bind the sand grains together until the core has been baked and the grains of sand cemented together by the binder. Baking is necessary to remove the water and oxidize or harden the core oil into a hard, permanent cement, binding the sand grains firmly so that the core will stand handling.

The core binder is present in the green sand core as globules or minute drops of oil, more or less uniformly distributed throughout this mixture. Since oil and water do not mix, and the water is already covering the sand grains, the minute drops of oil occupy the spaces between the moisture-coated grains of sand.

The ideal method of baking these cores would be to raise the temperature slowly enough (the time depending on the size of the core) so that none of the binder would be oxidized or hardened until all of the moisture had been evaporated.

As fast as the sand grains begin to lose their moisture, the oil in contact spreads out over the grains of sand, coating the grains with a film of oil, just as they were coated with a film of moisture, the transition from film moisture to film oil taking place gradually, beginning on the outside when heat and air circulation are first to affect the core.

The phenomenon of capillary attraction at the point of contact of two sand grains takes place with oil just as with water,

except that the capillary attraction is greater with oil than with water, the oil being more viscous.

The displacement of film moisture with film oil disposes of the minute drops of oil between the grains of sand and opens a passageway for the moisture and steam to escape from the interior of the core.

The heating of the core to a temperature sufficiently high to evaporate all the film moisture reduces the viscosity of the oil binder and permits it to flow evenly in a thin coating all over the grains of sand. This permits the use of a minimum quantity of oil and at the same time provides as large passageways as possible between the grains of sand for the passage of gas or moisture.

If the temperature is raised too rapidly, the oil will begin to harden or oxidize between the grains of sand before the film moisture has had a chance to evaporate and get away. The result will be a poorly vented core because the minute passageways between the sand grains would be choked up with the hardened drops of oil.

After the moisture has been evaporated, further heating drives off the light, volatile portion of the oil binder which escapes in the form of a gas. To harden the oil binder requires both heat and oxygen. Raising the temperature takes care of one requirement but unless the core has been treated properly in the early stages, fur-

nishing the proper amount of oxygen in the form of air to the interior of the core is a difficult problem. If the core has had a proper preliminary baking, the temperature having been raised slowly, air will have no trouble in finding its way into the interior of the core, thus uniformly oxidizing the oil and producing a strong uniform core.

Care must be used not to raise the temperature high enough to burn or carbonize the oil. If the core has been improperly handled, the outside of it will be found to have a hard skin. The interior of the core will be soft, and, if the temperature is forced high enough to bake it, the oil on the outside will be carbonized. The binding or holding power of the oil is destroyed, permitting the sand grains to crumble and fall apart. Such cores are said to be burned.

The importance of proper baking cannot be overestimated, and gas fuel is inherently better than another fuel because of its physical properties. Gas possesses numerous advantages, the two having immediate bearing being:

Combustion is easily controlled, the atmosphere can be kept oxidizing, reducing, or neutral as desired. An oxidizing atmosphere is required in baking cores.

Temperature control can be effected through the use of direct acting thermostats.

A California foundry is now equipped with two large gas-fired ovens which were installed in place of coke-fired ovens. The first oven was built without any insulation and the second one with sil-o-cel brick insulation.

The outside measurements of the ovens are 14 feet, 2 inches in width, 20 feet, 7 inches in length, and 11 feet, 6 inches in height. Each oven is equipped with a high-pressure gas inspirator which feeds into a horizontal manifold at the rear. Fig. 1 is a drawing showing a side view of the oven and gas burner with the thermostatic control and clock cut off. The inspirators and automatic controls are located at the rear and in the center of each oven. The manifold is made of three-

inch pipe and runs along the sides and back of each oven. The burner ports consist of $\frac{1}{2}$ " to 1" elbows and blast tips (see drawing). There are 50 ports spaced four inches apart from center to center on each side of each oven.

Fig. 2 is a picture of the two ovens; the one on the left is not insulated, while the right-hand oven is. The car in the right-hand oven is loaded with a core weighing approximately 34,300 pounds. The burning gas can be seen at the ports of each manifold burner in each oven.

The ovens are controlled by two high-pressure thermostats and an electric range clock. The thermostat holds the temperature at 400° F. and the clock releases a weight which closes the main gas valve at any set time. Each oven is equipped with a signal light which shows when the oven is operating. In Fig. 1 is a drawing which shows the thermostatic control and clock cut-off arrangement.

Detailed operating data were taken on the core oven without insulation using gas containing 550 B.t.u. per cubic foot. These data were taken when the oven was first installed and operating under varying conditions in order to determine the best conditions for drying. The operating period, which was eight hours on December 12, 1924, was gradually reduced during the next 30 days, and the gas pressure at the start was increased to five pounds while the holding pressure was also increased from one to three pounds.

On Jan. 14, 1925, the uninsulated oven was loaded with approximately 10,000 lbs. of oil sand cores and 9,512 cubic feet of gas, containing 550 B.t.u. per cubic foot, were consumed to dry them. The oven was operated from 5:30 p.m. until 10:30 p.m., a period of five hours. When the oven was started, the gas pressure was five pounds per square inch. The pressure dropped gradually over a period of three hours to three pounds. At the end of this three-hour period a temperature of 375° F. was reached and the temperature held at approximately 375° F. for

(Continued on page 48)

Window Display Should Do More Than Sell

It Should Also Educate Community to Superiority of Gas and Create Prestige, According to Guy Philp of Kings County Lighting Co.

By COLEMAN McCAMPBELL

Assistant Advertising Manager, Standard Gas Equipment Corp., New York, N. Y.

THE threefold purpose of window display, stated Guy Philp, display manager for the Kings County Lighting Company of Brooklyn, in a recent interview with the writer, is: First, to educate the community to the superiority of gas as a fuel; second, to stimulate the sale of gas appliances; third, to create prestige.

Creating prestige is particularly important, Mr. Philp believes. It identifies you immediately with the community as a distinct asset and attraction. The public will soon go out of its way to view your displays and they will always point them out with pride to visitors and tourists. In this way, the first essential of all selling has been accomplished. You have gained attention and inspired confidence! Selling the idea of gas and the use of gas appliances will then be simple.

This matter of creating prestige through appealing, interesting windows is almost more important to gas companies than department stores. The latter use big newspaper space daily to tell of their bargains in merchandise, to indicate trends in fashion, to introduce new novelties. The gas company, as a rule,

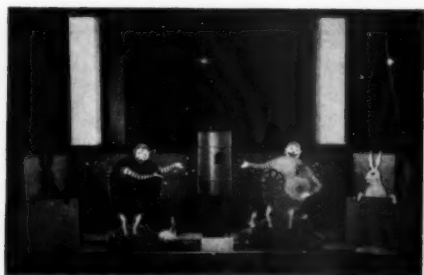
uses much less newspaper space and is not on the daily shopping list of the housewife. It is only when something goes wrong, a new appliance is needed, or a bill is due, that the gas company is consulted. So, if an impression that is continuously favorable and friendly is desired, windows that tell your story in effective merchandising pictures can be a big help in accomplishing it. They will also enable you to successfully compete with department and other stores handling gas appliances.

As regards the type of displays, Mr. Philp tries to surround the appliances with as much human interest and romance as possible. The appliances in themselves are not beautiful enough to make an impressive display. Pictured in ideal settings or in concrete applications they have a more immediate appeal.

Mr. Philp is particularly partial to room interiors which always have good attention value—for instance, a living-room furnished and arranged in good taste with a radiant gas heater in the fireplace and perhaps a cut-out figure or two. Or you can have colorful kitchens and basement playrooms, the latter stressing



In this window the display man cleverly contrasts the old with the new. Interesting atmosphere is created by the center panel showing a street of long ago



Children will stop and look at Easter windows as delightful as this one. And they'll insist on having whoever is with them read aloud the text on the display cards



Action has been introduced into this window. The contents of the large purse were a \$5 gold piece, silver powder compact, green silk handkerchief and gold lipstick

the convenience and cleanliness of gas for heating and the small space required. Model interiors also have the advantage of elevating the local standard of taste and linking up with the model exhibition homes now under construction.

In speaking of color, Mr. Philp says: "Color by harmony or contrast plays a major part in most displays. Windows full of good clear color are pleasant things, but unless that color leads the eye to some definite point, its advertising value is lost to a great extent. If many colors are used they must be harmonious; if few, they should be strongly contrasted either in color or tones of the same color. Sometimes one small brilliant spot of color brings the whole interest to a center and there the copy or appliance should be. Often we can lead the customer's eye to what we want him to see in this way."

One of Mr. Philp's windows for the Kings County Lighting Company was based on an allusion to an entirely different thing. It showed a cut-out poster of a woman with parasol and bustle of the nineties and this copy:

"Bustles and coal stoves are out of date—You wouldn't wear one so why use the other?"

The jacket design on "The Mauve Decade," a book on the "gay nineties" which has been in vogue for many months, inspired this window.

Mr. Philp has found that fairy-like displays appealing to children are good

salesmanship and uses them often. The children will usually stop their parents and insist on a detailed explanation. In this way the story is doubly effective. Windows of this type are excellent to link up with special holidays, such as Thanksgiving, Christmas, Easter, etc.

In many instances, strictly good-will windows are desirable—windows tying up with special local and national events. Even when they do not mention gas or show gas appliances they create prestige and friendship, which, after all, is important.

Industrial Research

Laboratories in the U. S.

THE continuing demand for a new edition of Bulletin No. 16 of the National Research Council which contains a list of research laboratories in industrial establishments of the United States indicates that this list apparently fills a certain need in the industrial world.

It is undoubtedly true that since 1921 a large number of industrial concerns have established research laboratories. It is also probably true that the 1921 list does not contain a complete roster of the firms which had laboratories at that time. In order that the new list may be as complete as possible, the readers of this journal who are connected with firms now maintaining research laboratories are requested to send a postcard giving the name and address of the firms with which they are connected to the Research Information Service, National Research Council, B & 21st Streets, Washington, D. C.

Questionnaires will then be sent to these firms.

The Gas Industry and the A. G. A.

In the Seven Years of its Existence, the Association
Has Done Much for the Industry in America

By HERR LUDWIG

Ober Director, Munich Gas Works, Munich, Germany

THE Deutsche Vereins von Gas und Wasserfachmaennern commissioned me to make a year's study of the gas industry in America and England, in order to become acquainted with the manufacturing methods in vogue in the gas plants, the use of gas, as well as the character of the gas appliances employed in the households in America and England.

It must be said here that it was not possible in the three and one-half months stay in these countries to obtain a complete picture of the conditions that apply there in the gas industry. It was only through a subsequent study of the trade literature that my observations were supplemented and rounded out.

AMERICAN CONDITIONS

The European who travels towards America must set himself free from all the narrow views that he holds on setting foot on American soil. He must free himself from his small conceptions which are entailed by the very nature and history of the portion of the Earth in which he has lived. The United States of America covers an area which is somewhat larger than that of Europe. The Great Lakes are approximately three-quarters the size of Germany. With a total population of 105 millions the American conditions can be compared to a certain degree with German conditions, where the population is 60 millions,

EDITOR'S NOTE

"It is astounding to see what the American Gas Association has done in the seven years of its existence," says Herr Ludwig, of Munich, Germany, after a year's study of the gas industry in America and England.

Mr. Ludwig holds a mirror for the American gas man to gaze into and see in perspective his own industry and his own strong points.

Mr. Ludwig made his study for the Commission of the Deutsche Vereins von Gas und Wasserfachmaennern. This article is abstracted from *Das Gas und Wasserfach*.

but the geographical conditions are altogether different, for United States is eighteen times as large as Germany. These conditions explain not only the rapid growth of the country, but also the characteristic confident, enterprising, and cool character of the American in commercial undertakings and in politics. The

large spaces in America have a certain favorable effect on the equilibrium of commercial and political forces which does not exist in Europe, where these forces are always causing considerable anxiety.

THE AMERICAN PEOPLE

It is a very difficult matter to judge the American people from the cultural standpoint. If the life and the development of a people are to be compared with the life and the development of a single individual, then the American people have an average age of between eighteen to twenty-one years and the German people an average age of between forty and forty-five years. The Americans are a very young and healthy people, bubbling over with energy, and possessing all the characteristics of youth. Excessive over-bubbling, youthful character is often paired with a certain sound brutality. An important characteristic is the co-operation that is shown between those who are working together, a fact which is of considerable importance to the success of the work, and a condition which is

not found in Germany. Furthermore, there is a very definite relationship between the employer and the employee. No classes were observed in America but rather certain types of men with the same ideas. An example will show in a very typical manner the difference between the American and the German people. Suppose a number of Americans and an equal number of Germans were requested to climb up a pole. The Americans would help each other to reach the top of the pole, while the Germans would try one to hinder the other in order to be the first to reach the top.

The position of the woman has a very potent influence on American conditions. It is very important to understand this position, for this affords an explanation of the extraordinarily high consumption of gas in the home in the United States. The woman, protected by law and custom, is fully equal to the man in all things, and in fact before the law she is better than the man. This is the result of the hundred-year-old constant lack of sufficient women. It is not to be expected that this condition is changing, when we consider the fact that one woman is found amongst every 49 immigrants. An American of high standing in the community told me, "I am the father of three sons; they are typical Americans and are particularly concerned in making the life of their womenfolk easy and comfortable at home, so that they have sufficient time for pleasure, church duties, and 'shopping.'"

The effect of this condition on the women is that they demand all the latest improvements for use in the home.

Servants are scarce in America, for the servant that can cook demands one hundred dollars a month which is high even for Americans. For this reason the middle-class families generally do without help. I saw a home of ten rooms in which there were no servants. The man of the house had a large income in this case, but the wife and her two daughters did all of the housework. This

explains the demand for gas appliances. The cost of gas is of lesser importance compared with the convenience and speed which are attained by its use in cooking. It can be said that on this ground alone the consumption of gas is at least one hundred per cent higher than in Germany. Another reason for the high consumption of gas is the extensive and free use of hot water. Hygiene is very much emphasized in America. The American takes frequent baths. Each home has at least one bath room, and often there are two and more. Hot, not merely warm, water is on tap at each and every sink, in every kitchen and in every wash-stand.

Instead of carefully washing off the dishes, as is customary in Germany, they are flushed off with hot water, so that they will dry without being wiped. This is the reason why the consumption of hot water is so high in the kitchen. Linens are changed often, due to the climatic conditions and to the desire not to make them too dirty. The washing of clothes is accomplished in automatic washing machines heated with gas. Excellent detergents are employed. The wash is ironed out with the aid of a gas iron. In this free use of gas is found again the reason for the high gas consumption. The use of gas for this purpose is at least two and one-half to three times as great as in Germany.

A simple example will show the difference between the use of gas in a German and in an American home.

It is assumed that a German city family has a monthly income of approximately 400 marks. The consumption of gas per month amounts to one hundred cubic meters and the price of the gas is 20 pfennig; therefore, the cost of the gas is 20 marks. It is known that the average income of an American family is about four times that of a German family, so that an income of 400 marks corresponds to one of 400 dollars in the United States. At a gas price of fifteen pfennig and a consumption three times as great, the cost of the gas will be 45 marks per

month. This means that five per cent of the income will be spent for gas in a German home and three per cent in an American home.

The American gas men have for the past seven years been associated into the American Gas Association, known as the A. G. A. for short. Formerly there were about nine different associations on the Pacific coast, in the North, South, etc. These associations were of various size and had but little contact with each other. It is astounding to see what the A. G. A. has done in the seven years of its existence. The organization is a very extensive one and the interest of the members is very strong. In the main office there are 15 employees and in the management there are 66 persons concerned. These figures do not include the subordinate personnel. The association has twenty-two main committees, 72 committees and 55 sub-committees with approximately 1200 members who serve gratis, of whom many are on more than one committee. The committees themselves contain few members. They have the right to ask for co-operation and attract particularly the younger gas men who have proved themselves to be representative in their various fields.

The large number of committees is made possible only by the fact that the work is all honorary and because the companies consider it to be an honor when any of the members of their organizations are asked to serve on these committees.

The administrative force of the association consists of a president, a vice-president, a first and second treasurer and six honorary sectional chairmen. The number six is then found throughout the entire organization of the association. Paid secretaries are associated with these six honorary section chairmen. The sections are as follows: 1, Accounting; 2, Commercial; 3, Industrial Gas; 4, Manufacturers; 5, Publicity and Advertising; and 6, Technical.

The results obtained by the committees and the sub-committees are reported to



The author found the Testing Laboratory an important undertaking

the sections and are there discussed. The yearly reports are published in book form. The material is excellent, perhaps not so scientific as in Germany, but based on well-founded, faultless investigations. The work of the A. G. A. has covered a large field. In the seven years 250 leaflets, books, writings, reports and the like have been published, and in this the individual reports are not at all taken into consideration.

Standards have been developed for gas appliances, for the testing of gas appliances of all sorts, for gas tubing and the like. Detailed information has been issued on house heating, on the use of gas in baking, for the gas engineer, on educational matters and the like. Suggestions are frequently published regarding advertisements and bill-posters.

The American gas men hold a national convention yearly. With a total number of delegates of approximately 3,000 the providing of quarters for them is surrounded with difficulties even in the United States. The entrance fee for the participants in the convention costs 8.40 marks. Each member visiting the convention registers on his arrival. He receives, just as in a German convention, printed information and a program.

Participation in the meetings is much more regular than with German gas men. The meetings are characterized by their genuineness, brevity of addresses and by absolute quiet. Due to this large participation loud speakers are necessary.

The American system of establishing the gas and electric rates consists not in having them set by the gas companies or by the cities, but they are decided upon by a public commission, the public service commission. The commissioners are named by the state. The companies must stand in well with the commissioners and at each meeting the relations between

the commissioners and the gas companies are seen to be most excellent.

The Atlantic City meeting had a very full program. There were not less than 36 reports and 59 addresses and talks delivered within a period of four days. This readily reveals the fact that the addresses were not long, that each speaker kept to his subject and was indeed proud

(Continued on page 56)

Small Rotary Pump Solves Drip Problem

By H. W. NICHOLSON

Superintendent of Distribution, The Public Service Electric & Gas Co., Newark, N. J.

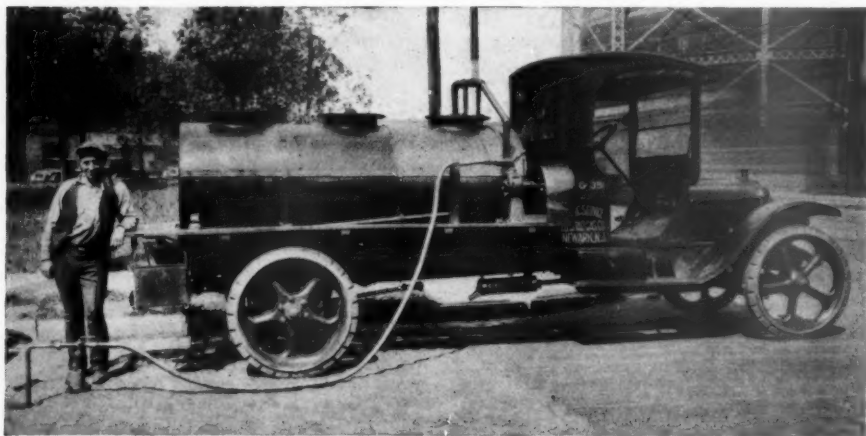
FOR several years the drip pumping problem of the Public Service Electric & Gas Company, Newark, N. J., has been handled satisfactorily by tank trucks such as shown in the accompanying illustration.

The principal item of interest in this equipment is the pump. After a thorough study of the conditions and a trial of different types of pumps, we adopted a small rotary pump having only two moving parts. We found that piston-type pumps took up considerable space, necessitating placing the tank too far away from the cab for correct chassis loading. Piston-type pumps are also more complicated and have a number of moving parts which will wear and need replacement.

The rotary pump shown in the picture

occupies very little space and can therefore be mounted on the running board around the 500-gallon tank. This allows the tank to be set forward to within six inches of the cab. The driving belt runs from the power take-off of the engine to the pump through this six-inch space and is protected from the weather by a galvanized iron shield. In cold weather a removable galvanized iron box covers the pump and is heated by a take-off from the exhaust pipe.

The pump itself with its two moving parts has a capacity of 35 gal. per minute with the engine running very slowly. It needs no priming and will handle our deepest drips with no trouble. In three years of steady service it has required only one repair part.



The Public Service drip truck in action

From Coal Pile to Final Balance Sheet

The Women's Service Club of the Consolidated Gas Company of New York Presents an Interesting Lecture Course

THE Women's Service Club of the Consolidated Gas Company of New York, N. Y., is conducting a series of lectures for its members under the title "From Coal Pile to Final Balance Sheet." The member of the club who writes the best article on "Gas Manufacture," covering every phase of the gas industry as outlined in the lectures, will be given a free trip to Chicago to attend the Ninth Annual Convention of the American Gas Association in October, 1927.

The judges chosen to make the award are: George E. Woods, vice-president; Oscar H. Fogg, vice-president; and W. Cullen Morris, chief engineer, the Consolidated Gas Company.

The first lecture of the series on "Production," was given by A. Gordon King, service engineer of the American Gas Association, on November 22.

More than 175 members of the club were present, many of whom took notes and asked the lecturer questions.

In the lecture on "Production," every effort was made to make the subject interesting, and the technical matters were explained by means of charts, pictures, and gas-making demonstrations. There were exhibits of bituminous coal, anthracite coal, coke, gas oil, and the major by-products, including new and spent oxide.

Mr. King used blackboard sketches and also demonstrated Murdock's famous "thimble" burner in operation.

The Women's Service Club of the Consolidated Gas Company of New York with its affiliated companies was formed a year ago to "promote social and athletic activities; foster goodfellowship, self-government, loyalty, cooperation and a broader understanding of the gas industry among its women employees." It is one of the most successful organizations

of its kind in American industrialism. The enthusiasm with which it was started, with 156 charter members, and the hearty, helpful encouragement of the company, made it a notable achievement from the beginning. That it has accomplished much is proved by the present membership, exceeding 400, and the course of lectures it is presenting with a trip to the A. G. A. convention as a prize award.

The officers of the club are: President, Ethel A. Conklin; first vice-president, Nellie B. Seymour; second vice-president, Grace E. Larson; treasurer, Bertha E. Dutcher; secretary, Bessie E. Dimes; company representative, Elizabeth M. Marlowe.

Ten Rules for Foremen— and Others

1. *Be fair.* Have no favorites and no scapegoats. A foreman has to act as judge many times every day; therefore, he must be just.
 2. *Make few promises and keep them.* A foreman must be exact in this particular. Sometimes a foreman forgets that his job requires a high standard of truth and honor.
 3. *Don't waste anger—use it.* Anger is valuable and should not be used carelessly. Keep your most forceful language for special occasions.
 4. *Always hear the other side.* Never blame a worker until he has been given a chance to give his point of view.
 5. *Don't hold spite—forgive.* When you have had to scold a worker, go to him later and show him his faults in a friendly way.
 6. *Never show discouragement.* Never let yourself be beaten. A foreman must have perseverance and the "never-say-die" spirit.
 7. *Notice good work as well as bad.* Let the workers see that you can appreciate as well as condemn.
 8. *Watch for special ability.* Take a keen human interest in your workers. Put each one where he can do his best.
 9. *Take your full share of blame.* This is the most difficult of all. The foreman who can share both blame and praise with his workers has discovered the secret of managing men.
 10. *Prevent accidents.* Educate or eliminate the careless man. The good foreman is known by his men.—*American Machinist.*
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Appliance Selling

(Continued from page 4)

by the interest aroused in obtaining these results.

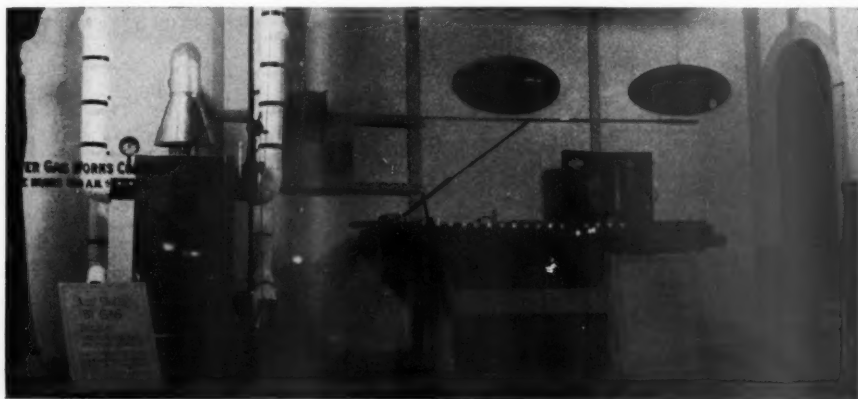
We frequently hear employees say they do not feel capable of selling appliances and yet those same individuals sometimes know a great deal more about gas equipment and company policies than others who are active in selling and less qualified. Did you ever stop to think that you make most of your purchases of any value upon the recommendation or "say-so" of some friend or neighbor? That is exactly how the average gas consumer feels in purchasing his appliances. Very often the customer will place more confidence in the employee who is not a salesman, so-called, than he will in the representative of the sales department. It is quite natural that the prospective buyer accepts with more reservation the statements of a regular salesman than those made by an employee whose business in the company is not exclusively selling. This condition of mind on the part of the customer gives the general employee a fine opportunity to present the service of his company to his neighborhood group, as well as his relatives and friends.

In addition to the value of general employee selling from the standpoint of creating customer good will and making

our employees more loyal and efficient in their regular work, we must not overlook the added compensation the employee receives from his part in selling appliances. Our ten highest employee salesmen earned a total of \$476.92 during the first ten months of this year, each averaging from \$34.66 to \$69.40. It goes without saying that this additional money came in very handy and perhaps made possible conveniences and other good things in the home which otherwise would not have been considered. Employees are paid five per cent on the gross selling price of all appliances sold direct of value up to \$100. Above \$100 the commission is two per cent. Also a two per cent bonus is paid employees on all sales resulting from prospects turned in. As previously stated, indirect sales through prospects comprise about 75 per cent of the total employee sales.

Those employees outside of the sales department who have not yet turned in prospects or made sales direct are urged to become members of our employee sales family.

General employee appliance selling has come to stay. This year more than 10 per cent of our total gross sales will come through direct or indirect employee sales work. Our slogan is "Every employee a salesman for the company."



Especially well-executed window display designed to sell house heating that was used recently by the Fall River Gas Works, Fall River, Mass.

Economic Aspects of the Conversion of Coal into Smokeless Fuels

By HORACE C. PORTER
Consulting Chemical Engineer, Philadelphia, Pa.



Horace C. Porter

TWO lines of attack with which we may combat the smoke evil seem to be offered; first, to extend the use of good methods and good equipment in the burning of raw coal; second, to manufacture and burn more of "smokeless" fuels.

Both of these methods entail some initial expense to the consumer, although he regains his outlay, and often more, in the end. The first method has, up to the present, required the lesser outlay and, therefore, has been used more than has the adoption of prepared smokeless fuels.

Psychology, as involved in this very matter of initial expenditure and intangible returns, enters prominently into the question of smoke abatement. The fuel consumer hesitates when he is confronted with a higher bill for his year's supply of thermal units, or an additional outlay for improved plant, incurred chiefly to enable him to avoid smoke, dust and dirt. This hesitancy can be, and is being overcome among the larger consumers—the railroads, the utilities and the manufacturing industries—by the force of public opinion, and by the realization of an ultimate profit to be derived from increase of operating efficiency and the benefits of a clean, healthy atmosphere. The growth in centralization of power production, the increased use of gas in industry, and the gradual replacement of the steam by the electric locomotive, are already doing much to abate smoke.

To the small consumer, however, the average householder or manufacturer,

who finds it necessary to take account closely of initial outlay for fuel, the appeal for smoke abatement is quite generally in vain, if it means an initial burden of added cost. In order to go far with domestic smoke abatement among the masses a smokeless fuel must be offered which carries only a small margin of cost, if any, above that of the raw fuels available.

We burn annually in America, without serious production of smoke, at least 200,000,000 tons of fuel—coke and gas (figured to coal equivalent), anthracite, and much of the central station coal. This is two-fifths of our total annual consumption (excluding metallurgical coke, exported and bunkered coal), and is thus a very respectable figure, showing that we are not entirely abandoned to a made pursuit of industrial profits, neglectful of the common welfare.

But in the 300,000,000 tons of coal that are yet producing smoke in the railway locomotives, the host of small power plants, the metal-working and chemical plants, and in the numerous domestic fires—collectively of importance—we are confronted with a serious economic problem, especially menacing in those fast enlarging sections where bituminous coal is practically the only available raw fuel.

The question arises, therefore: Can we hope to solve the smoke problem for these sections by offering them at reasonable cost a smokeless fuel prepared from bituminous coal? Or must they depend chiefly on the use of improved burning equipment, central station power, and greater care in operation of furnaces?

It has been estimated that the larger sources of smoke in the average urban community where soft coal is burned are the railroad locomotives, and the small power plants serving individually the

FOR THE BUSY READER

GAS, semi-coke and coke are smokeless fuels made from bituminous coal at a certain cost of conversion, not only a cost of operating and for plant investment but one arising also from loss of total available heat in the products.

It is necessary, therefore, to compensate these losses by an enhanced unit value in the products and by-products, and establish a margin for profit and contingent expense. Unless investors can see a clear margin on paper of 15 per cent to 20 per cent on the invested capital to cover promotion and the risks of market uncertainty, interruption of operations, price fluctuations, etc., they are unwilling to go far in laying out capital.

The incentive presented by the products of low-temperature carbonization of coal has not yet reached such a margin. It may come when the public demands the virtues of those products or when costs of conversion are brought lower.

The use of gas as a domestic heating agent will grow rapidly as its price is reduced through suitable changes in rate structure and quality standards, and by use of large central producing stations.

small factories, hotels, business blocks, etc. If a smokeless fuel suitable for the needs of these consumers could be offered them at a price little if any higher than that of coal and could be supplied continuously in sufficient quantity, it is probable it could be sold, and good progress thus made in smoke abatement.

The large central power station is not ordinarily now an offender in smoke production, having mechanical stoking equipment and boiler settings capable of operation without smoke. These stations are doing much to lessen smoke also by increasing the centralization of power production, enabling the abandonment of many of the smaller isolated plants.

There will continue to be needed, however, an improved smokeless fuel for the domestic fires, the railroads, and the small power and heating plants.

Coke made in high-temperature ovens we have already in limited quantity. It has established itself successfully in many communities as a high-grade smokeless fuel commanding a high-priced market where anthracite is not readily available. Owing to the high costs of by-product

ovens and equipment a plant must sell its coke output at an average price well above that of the coal carbonized, and dispose at the same time of gas and by-products advantageously. Therefore, as a household and general fuel, coke cannot hope to be universally adopted in communities where bituminous coal is to be had cheaply.

In order to make such sections 100 per cent smokeless, it will be necessary to devise a process that will give them a low-priced prepared fuel to compete with bituminous coal on a close margin of price and of such quality as to meet the demands for steaming capacities and other firing qualities set up by bituminous coal.

Whether low-temperature carbonization of coal can do this in the future remains to be seen. It has not yet attained the goal.

The necessary margin as an inducement to investors of capital has not yet been shown. The margin that does appear with some processes under favorable commercial conditions is still too small to give the necessary impetus and to overcome the risks of market fluctuations, irregularities of operation, and other contingencies.

A point in this connection that is often lost sight of, or under-estimated, is the loss of heat units—that is, available heat energy—through the carbonization process. If we have a net yield of 67 per cent semi-coke (after providing for firing of the retorts) and this material, owing to higher efficiency, has, say 10 per cent more of available heat per pound than has the coal, we still have lost 25 per cent of the original heat in the coal. Gas and tar we place as by-products.

It is of value to set up a balance sheet in simple form.

LOW-TEMPERATURE CARBONIZATION (Per ton of coal)

Gains:	
Tar, 24 gals., @ 6c.....	\$1.44
Gas (800 B.T.U.) 32 "therms" (of 100,000 B.T.U. each) @ 4½c.....	1.44
	\$2.88

Losses:

25% of heat in coal	\$1.12
Margin for profit and contingencies,	
20% on invested capital .....	.80
Balance, for costs of plant investment	
and operation .....	.96
	\$2.88


On this basis, it is readily to be seen that costs of conversion must be brought to \$1.00 per ton of coal or lower, if the smokeless fuel produced is to sell at the same price as coal. With an enhanced value, however, in the semi-coke such as, say, to command 20 per cent margin in price, there would be available \$1.50 for conversion costs, instead of \$1.00.

The problem presented, therefore, is:

(1) To lower the cost of conversion, by engineering development of the processes, to a point less than \$1.00 per ton of coal, under existing commercial conditions;

(2) To establish a sufficiently enhanced value in the semi-coke, ton for ton, as compared to the coal from which made,

How Much Will Smoke Cost You This Year?



THAT you may better picture the waste-fulness of smoke, we publish the following figures. They compare the life of metal structural work in smoky cities and smokeless cities, and are taken from a report of the Mellon Institute.

	Smoky City	Smokeless City
Galvanized Sheet Iron	3 to 6 years	7 to 14 years
Galvanized Sheet Steel	3 to 4 years	5 to 10 years
Tin Sheet Iron	13 to 15 years	18 to 20 years
Tin Sheet Steel	6 to 10 years	10 years
Copper	20 to 20 years	No limit

Where there is smoke, there is destruction—destruction of building, machinery and finished product. And even worse is the impairment of employees' health and efficiency.

Not alone as a civic duty, but equally as a matter of plain commercial profit, your plant should be a leader in the "Smokeless Town" movement. On request, we will send a representative to show you how gas can be profitably employed in your plant. Write or phone us today.


(Signature and Telephone of Gas Company)

YOU CAN DO IT BETTER WITH GAS



Matrix of the advertisement shown above. These are used by the local companies in newspapers

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Not alone as a civic duty, but equally as a matter of plain commercial profit, your plant should be a leader in the "Smokeless Town" movement. Send today for our interesting book, "Gas—The Ideal Factory Fuel".

American Gas Association
342 Madison Avenue, New York City

YOU CAN DO IT BETTER WITH GAS



The American Gas Association, in its advertising program in the industrial papers, calls attention to the smoke problem in the February copy

to enable a ton of coke to bring a return at least equal to the cost of the coal used;

(3) To discover commercial applications of the special tars and gases produced by these processes which will enhance their value above that of the now traded-in coal tar and gas.

It is likely that all of these phases of the problem will need to be solved in some degree before the pre-treatment of coal by low temperature carbonizing will have important commercial success. A big advance, however, along any one of these lines would no doubt exert a strong impetus for the promotion of projects in this field.

As bearing upon improved efficiency and smokeless operation in boiler furnaces, there is much interest being manifested now in the possible beneficiation of coal for boiler firing by pre-drying and partial carbonizing. In this way may be found a considerable impetus for low-

temperature carbonization as applied to certain types of coal.

As Runge¹ and others have pointed out, the net heat units available per pound under a boiler may be increased by 10 per cent or more through carbonization of a coal carrying, say, 6 per cent moisture. The stack losses in the items of moisture of the fuel, moisture from burning of hydrogen, and heat of the dry chimney gases resulting from excess air supplied are materially reduced by the pre-carbonization treatment. This advantage may be found to lead to an important gain in burning, say, the Illinois type of coal.

Furthermore, it is reasonably to be expected that a boiler furnace may be pushed to higher capacities without reduction of efficiency or the making of smoke through the use of a free-burning dry and tarless fuel such as well-made semi-coke, than are possible with the corresponding raw coal. This advantage would lead thus to reduce cost of furnace and boiler equipment.

Direct-connected, continuously operated, pre-carbonizers on a boiler furnace would give the added advantages of sensible heat in the fuel and the minimizing of rehandling machinery or labor. But there are practical difficulties here arising from the necessity of rotating the boiler units in a plant so as to keep one or more out at all times for cleaning and repairs. Whether the carbonizers, if direct connected, could be shifted as required from one boiler furnace to another and thus maintain the continuous operation necessary for good results constitutes an engineering problem well worthy of attention. At any rate, here is a field that presents possibilities of important advantages to be gained in low-temperature carbonization and enhancement thereby of the unit value of the fuel.

Under the head of by-product possibilities the very rich gas obtained from low-temperature carbonization is worthy of consideration as an important source of revenue. A gas of 800 to 900 B.t.u. per

cubic foot, not so constituted as to cause trouble with condensation, should be of high value as an enriching agent to mix with a lean, low cost base gas for city supply. Let us assume that a station of 200,000 to 250,000 k.w. capacity, such as are operated now on coal in several of our large cities, should find it practicable some time in the future to pre-carbonate 1,000 tons per day out of its total coal consumption. Enough 800 B.t.u. gas could thus be made to mix with 3,500,000 cubic feet of blue water gas and make 7,000,000 cubic feet of 525 B.t.u. city gas, saving \$1,000 worth or more of gas oil. Such a possibility of by-product gas from a single station is a feature of low-temperature coal carbonization that may some time challenge attention of the gas utility men.

In any consideration of possible future developments in the making of smokeless fuels from coal, the rapid growth in the use of manufactured gas, both domestic and industrial, must not be overlooked. Gas is an ideal smokeless fuel, and offers many other advantages and economies which act to counterbalance in important degree its added unit cost. It is reasonable to look forward to a future lowering of the price of gas, in relation to coal prices, as changes in requirements of heat unit standards and in the drawing up of rate structures are brought into play, and large central stations use improved and less costly methods of manufacture made possible by lower requirements of B.t.u. standards.

It may be expected therefore that coal carbonization for the production of gas will extend itself rapidly, and that methods for gas manufacture will more and more be used that produce at the same time practical smokeless solid fuels, capable of satisfying the conditions demanded by consumers. Whether high-temperature or low-temperature carbonizing methods will have the larger share in this development cannot be prophesied now. It is not reasonably to be voted,

¹ W. Runge, *Coal*, April, 1926, pp. 196-201.

(Continued on page 32)

25,000 People Learn About Gas

First Three Blue Star Homes Demonstrated at Brooklyn, N. Y., Haverhill, Mass., and Lowell, Mass.

MORE than 25,000 people visited the first three Blue Star homes to be built and demonstrated in the United States. The Haverhill and Lowell homes attracted more than six thousand people each, and the Brooklyn, N. Y., home attracted twelve thousand.

Coupled with the announcement of the success met with by the first three companies to use the Blue Star plan is the further announcement that fifteen more Blue Star homes will be opened in the Spring. This is aside from the model homes being erected and demonstrated by the Home Owners Service Institute.

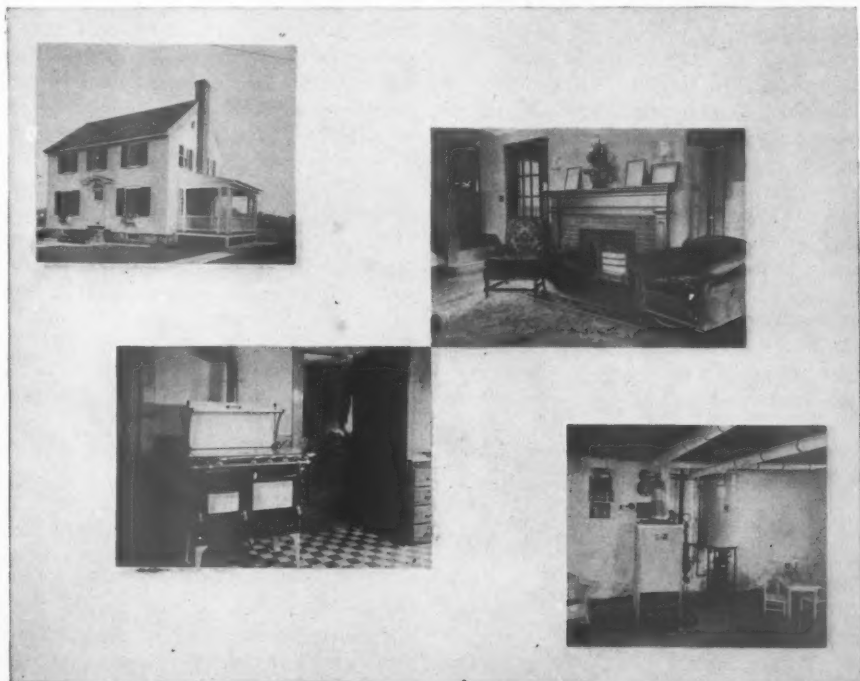
While each company promoting the Blue Star plan is faced with local conditions that will dictate the type of house to be built, the type of appliances, etc.,

the stories of these three homes contain many suggestions for interested sales managers and executives.

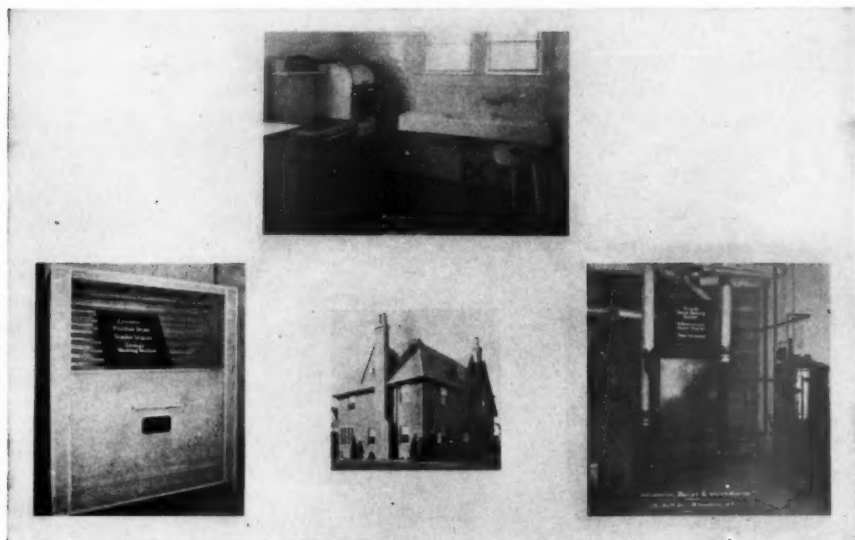
Charles H. O'Donnell, industrial engineer, Lowell Gas Light Company, has furnished the following descriptive story of the Blue Star home at Lowell, Mass.:

THE BLUE STAR HOUSE AT LOWELL, MASS.

The Blue Star house at Lowell, Mass., as shown in the accompanying photographs, is a single family two and one-half story frame house of pure colonial design. It contains six rooms and bath with an open porch. It is well located in a district of individually owned attractive one-family dwellings. The rooms are large enough to spell comfort, small enough to reduce the housework to a



The Blue Star Home that was demonstrated at Lowell, Mass.



The Kings County Lighting Company's Blue Star Home

minimum and compact enough to have many steps for the lady of the house.

As stated above, it is of frame construction, the exterior finish being clapboards and the interior hard plaster. It is insulated with corkboard $1\frac{1}{2}$ " thick on the walls and 2" thick on the ceiling of the second floor. The plumbing and wiring fixtures are up-to-date and in addition to all the usual modern conveniences and reliability of construction, the house contains adequate gas appliances befitting its size and type. The gas equipment is as follows: Gas-fired boiler with thermostat control, automatic water heater and radiantfire.

The net additional cost for this house over similar type houses is approximately \$900 and the selling price with land is stated at \$9500.

The accompanying photographs show the exterior of the house, the basement with its gas boiler and water heater, the living room with its radiantfire, and the kitchen with its gas stove. This stove was merely exhibited and is not included with the gas equipment that goes with the house.

The gas company presented the idea of

a Blue Star house in a talk before the local organization of architects and builders. The idea was received with a great deal of enthusiasm, with the result that a reliable development builder organization agreed to build a Blue Star house with the co-operation of the gas company. This concern agreed to use one of their approved designs which would be subject to minor changes by the gas company, to insulate the same and install a gas-fired boiler, an automatic water heater and a radiantfire. The builder also agreed that the house would be placed on exhibition upon completion.

Co-operation was solicited from a prominent local furniture company and this concern readily agreed to furnish the house completely without charge, even to the extent of the floor coverings, draperies and wall-hangings.

The builder agreed to make every effort to sell the house at a sum sufficient to insure the customary relative profit. If, for any reason, he should be forced to sell under this stated figure, the gas company would absorb this difference by an amount not to exceed \$500.

It was decided to place the advertising

in the hands of a capable local agency and the expenses of this were to be borne jointly by the three participating concerns, namely, the gas company, the builder and the furniture company. It was decided to make every effort to show a modern home rather than a model home.

Each of the three concerns justified their entry into this project as follows:

The development builder organization has operated in the best residential sections of this city for the past four years and has erected during that time, some seventy houses, the majority being of the single family colonial type of six or seven rooms each. Attention is called to the fact that this type of house has proven most popular in this vicinity.

As this Blue Star house was the first of its kind to be erected in this locality, this concern felt that in building it they placed themselves in the forefront of progress.

The furniture company co-operated with the builder in a Home Beautiful Show which took place in this city one year ago. The results were so gratifying

that they readily agreed to participate in this Blue Star Project.

The gas company felt that this campaign would afford a splendid opportunity to demonstrate the use of gas in the modern home and also to educate the people in the art of home making and home keeping.

In this particular case the Blue Star house is a small unpretentious one, and particular care was given to show a modern home rather than a model one. A more pretentious home could have been erected, but it was felt that the appeal to the person with a moderate income was entirely justifiable from the fact that to show such people that it is possible to attain the height of comfort and convenience and to create a desire for such is truly one of the most worthy efforts of a public utility.

The house was open for inspection completely furnished on October 12th, with representatives of the three participating concerns in attendance. The exhibition was brought to a close on November 1st. By actual count there were 1241



The Blue Star Home that introduced Haverhill people to the conveniences of adequate gas service



The Kings County Lighting Company used window displays to tell of the Blue Star Home people who inspected this house on the opening day. The total number throughout the entire period was approximately 6500, despite the very unfavorable weather conditions, especially on the three Sundays, October 17th, 24th and 31st.

The land surrounding the house was graded and at night it was bathed in brilliant floodlight. Very attractive signs bearing the Blue Star symbol directed visitors to the house and the whole effect was most pleasing to the eye.

The basement was converted into a children's playroom and proved a source of delight to the youngsters who accompanied their parents to the exhibition. This brought out very vividly by actual demonstration one of the many uses of the modern basement.

The visitors were very critical in their inspection of the house and its contents and it was noted that they voiced their approval to a far greater extent than their disapproval. The representatives of the participating concerns who were in attendance during the exhibition were particularly pleased with the attention paid to their answers to the various questions. No effort was made by these attendants to do any actual selling during the exhibition. Their duty was to answer

all the questions, explaining every detail to the fullest extent possible. This plan worked out exceptionally well.

One could not ask for a better gathering of people who were so critical and yet so appreciative. Elderly couples, middle-aged couples, newly-married couples and unmarried couples all were present showing their interest and appreciation of the efforts of the participating concerns. The majority of questions asked concerned the house with its insulation and the gas-fired boiler for heating.

It was noted that quite a few people made more than one inspection.

The advertising campaign was exceptionally well arranged having the Blue Star symbol conspicuously placed in each advertisement throughout the entire campaign.

The actual benefits derived from the Blue Star house project by the three participating concerns are shown by the fact that the furniture company has sold many times in duplicate the furniture exhibited in the house; the builder is quite confident that the Blue Star house will be disposed of shortly; and the gas company has sold house heating boilers, radiant-fires, water heaters and ranges.

The following letter from W. A.

(Continued on page 50)

Teaching the Housewife the Use of Gas

Exhaustive Surveys Show That the Servicing of Domestic Appliances Is a Paying Proposition

By C. B. TRUESDELL
The Union Gas & Electric Company

ONE of the important duties of the Home Service Division of the Gas Commercial Department of The Union Gas & Electric Company is that of giving explicit instructions to domestic gas consumers so that they can obtain the maximum amount of heat from the gas supply furnished to their homes.

Interesting information is gleaned from exhaustive surveys as shown by data compiled during the year ending May 31, 1926. One of the outstanding features is lack of knowledge on the part of the majority of householders of the efficient use of gas, principally through failure to adjust ranges, water heaters, and other heating appliances properly. The inspections also show that often the improper installation of equipment has prevented the economical use of gas.

By correcting these evils, employees of the Home Service Division have enabled thousands of housewives in Greater Cincinnati to obtain better service.

Since the organization of the Department May 13, 1924, 80,558 gas appliances have been inspected. Of this number 43,047 required adjustment.

Frequently it is found, when making inspections, that because of the condition of the appliances proper adjustments cannot be made. This is due principally to the fact that the equipment is antiquated, and therefore is extravagant in the consumption of gas.

When such cases are discovered the purchase of new equipment is recommended.

For example, one range was found to have been in use without adjustment or proper attention for nearly twenty years. The burners were corroded and the pipes showed a leakage. Even when not in use the range consumed gas which escaped through insecure piping.

Upon the recommendation of one of the inspectors of the Home Service Division, the owner purchased a modern



The Home Service Division of the Union Gas & Electric Company

U. G. I. To Mark Birthplace of Hymn

"He Leadeth Me" Was Written in 1862 on Site of
New Office Building of the Philadelphia Utility

By JAMES M. BENNETT

Publicity Manager, The United Gas Improvement Co., Philadelphia, Pa.

THE minds of many men of mature years are rich storehouses of information. Their utterances uplift listeners and often lead to projects of enduring importance. These two assertions are demonstrated in a plan now under way by the officers of The United Gas Improvement Company to place a bronze tablet on the U. G. I. Building, northwest corner of Broad and Arch Streets, Philadelphia, as a permanent marker of the birthplace of the hymn "He Leadeth Me" and the historic fact that The First Baptist Church once stood on the present site of the company's main office building.

The information that paved the way for the erection of the tablet was given by the late Rev. Dr. John Gordon, widely known, greatly beloved and deeply mourned clergyman of The Baptist Church, who went to a well-earned reward on August 2, 1925.

Nearly two years ago, Dr. Gordon, who was speaking to me, pointed to a brown-stone dwelling at number 1409 Arch Street, adjoining the U. G. I. Building, and said: "Mr. Bennett, that old dwelling has a remarkable history; a wonderful hymn was written there." "What was the hymn, Doctor?" I asked. "It was the hymn 'He Leadeth Me'," replied Doctor Gordon. "The Rev. Dr. Gilmore wrote it 'way back in the '60's. The

*He Leadeth me, O blessed thought!
O words with heavenly comfort fraught!
Whate'er I do, where'er I be,
Still 'tis God's hand that leadeth me.*

"He Leadeth Me," sung throughout the world, was written by the Rev. Dr. Joseph H. Gilmore, a son of a Governor of New Hampshire, in the home of Deacon Wattson, immediately after preaching in the First Baptist Church, northwest corner Broad and Arch Streets, on the 26th day of March, 1862. The church and Deacon Wattson's home stood on the ground upon which this building is erected.

The United Gas Improvement Company, in recognition of the beauty and fame of the hymn, and in remembrance of its distinguished author, makes this permanent record on the first day of June, 1926.

hymn has been sung all over the world."

Being somewhat familiar with hymns, I realized that Dr. Gordon was relating a most important fact of church history and hymnology.

About that time, The United Gas Improvement Company had purchased the house in which Dr. Gordon said "He Leadeth Me" had been written, and other property for the purpose of erecting an

additional office structure. Realizing that the home of the hymn "He Leadeth Me" would be torn down to give way to the onward march of business, the information received from Dr. Gordon was related to officers of The United Gas Improvement Company, who recognized its importance. After hearing all the details, Samuel T. Bodine, then President of the Company, now Chairman of the Board of Directors, ordered an inquiry into the statement of the Rev. Dr. Gordon. When all the information was laid before the officers of The United Gas Improvement Company, they then realized that it was their duty and pleasure to erect a bronze tablet telling the story of the writing of "He Leadeth Me" and making a permanent record of its birthplace. In order that the tablet should have additional value, it was also decided to make record of the fact that the First Baptist Church stood nearly 30 years ago on the site of the present U. G. I.

Building. The tablet will be placed on the Broad Street side of the U. G. I. Building in plain view of all the passers-by. The text is given on page 41.

Dr. Gilmore lived to rejoice that "He Leadeth Me" had been included in almost every collection of Christian songs; probably it has been translated into more languages than any other hymn. Among these are the Assamese, Burmese and Karen. There are also three versions of the hymn in the dialects of Micronesia and two Chinese versions. The hymn also exists in the Tamil, the Siamese and many other languages.

C. E. L. Thomas Dies Suddenly at His Home

CHARLES EDWARD LIVINGSTON

THOMAS, vice-president of the Bronx Gas and Electric Company, New York, N. Y., died November 30 after an illness of three days, at his residence Alger Court, North Gate, Bronxville, N. Y. Mr. Thomas was taken with a heavy cold which developed into grippe. His death was unexpected.

Mr. Thomas was born in Belleville, Illinois, on April 11, 1876. He graduated from Yale University in the class of 1897. It was during those university days that Mr. Thomas became a very warm personal friend of Nicholas F. Brady, who was then in Yale.

In 1898 Mr. Thomas volunteered and entered the American army in the Spanish-American War. In Cuba he became aide de camp to General Fitz Hugh Lee. At the conclusion of hostilities Mr. Thomas and two companions were selected to go to the roof of Morro Castle where the Spanish flag was lowered and Mr. Thomas and his companions for the first time raised the American flag over the Isle of Cuba. This incident was one that Mr. Thomas related only occasionally to his friends, but with excusable pride, because he had taken this part in banishing for all time the Spanish flag from American waters.

For about ten years, Mr. Thomas represented Nicholas F. Brady and the Brady family in the management of their large gas interests, the Osaka Gas Company, Ltd., in Osaka, Japan. When Mr. Brady sold the Osaka properties, about two years ago, Mr. Thomas returned to this country and was associated with Messrs. Nicholas F. Brady and James C. Brady in their office at No. 80 Broadway. He remained there

until November 15, 1925, when he came to the Consolidated Gas Company of New York, as assistant executive associated with Walter R. Addicks, senior vice-president of that company. Mr. Thomas was elected vice-president of the Bronx Gas and Electric Company, a subsidiary of the Consolidated Gas Company, on April 20, 1926. In this latter organization Mr. Thomas became a very ardent co-worker with his associate, Eugene H. Rosenquest, President of the Bronx Gas and Electric Company, who was proud of the growth of that company in the past, and looked forward to larger development of the gas and electric business in that section of the Bronx, which, until a few years ago, was known as the Village of Westchester, the eastern boundary of which was on the shores of Long Island Sound, the former site of many historical large private estates with their family mansions.

Mr. Thomas was a prolific reader and a poet of unusual merit. In Edmund Clarence Stedman's "An American Anthology," in that section devoted to the collection of college verse worthy of note, is printed Mr. Thomas' poem "To a Moth."

Mr. Thomas left a wife and a daughter eighteen years old. Among other clubs of which he was a member was the Yale Club, the American Yacht Club, the Spanish-American War Veterans' Association, the Bronxville Field Club, American Gas Association, and college fraternities.

Add 5,550 House Heating Installations

DOHERTY Company new business departments in a number of artificial and natural gas properties have been particularly active during the summer and fall months on the sale and installation of gas house heating equipment with the result that a large number of these installations will be in use during the 1926-27 heating season.

With the house heating installations sold this year up to September 30, together with those in use during the 1925 heating season, it is expected that a total of 5,550 installations will be on the lines of the companies. Of this total 3,900 installations were sold during 1926.

It is estimated that the new installations will carry an estimated increased gas consumption of 1,000,000,000 cubic feet. The installations sold include straight gas-fired furnaces as well as conversion units, the latter covering the installations of a gas burner in the present hot air, steam or hot water furnaces. A large number of the installations are of the automatic type including thermostats, etc.

THE TIDE OF MEN AND AFFAIRS



Geo. B. Cortelyou

GEORGE B. CORTELYOU, President of the Consolidated Gas Company of New York, N. Y., was elected an honorary member of the Society of Gas Lighting at its 51st annual meeting, held at the Hotel Astor, New York, Thursday, Dec. 9.

The following officers were elected by the Society: President, Dr. Alex C. Humphreys, President, Stevens Institute of Technology, Hoboken, N. J.; vice-president, W. Cullen Morris, chief engineer, The Consolidated Gas Company of New York; treasurer, William J. Welsh, president and general manager, the New York and Richmond Gas Company, Stapleton, S. I.; secretary, Geo. G. Ramsdell, American Gas Association headquarters, New York, N. Y. Alfred E. Forstall, consulting engineer, New York, N. Y., was elected a member of the executive committee, and Clifford E. Paige, vice-president, the Brooklyn Union Gas Company, Brooklyn, N. Y., was elected a member of the finance committee.

R. J. HOLE, of Greensboro, N. C., who has been prominently identified with the development of the gas industry in the South for many years, has resigned as President of the Whetstone Utilities Management Corporation, effective January 1. As head of this organization, which managed all the properties of the Southern Gas and Power Corporation, Mr. Hole was active in directing the operation and expansion of important gas properties in eleven different states, with headquarters in Philadelphia. He plans to spend the winter with his family in St. Petersburg, Fla., at the same time keeping in touch with his extensive business interests in Florida and North Carolina. For a number of years Mr. Hole was one of the owners of the North Carolina Public Service Company, supplying gas, electric and transportation service in the territory centering in and around Greensboro. Mr. Hole will continue his interest in Public Utilities through his presidency of the Carolina States Electric Company of Charlotte, N. C.

STUART M. COOPER has been elected president of the Charleston, S. C., Consolidated Railway & Lighting Company to succeed Philip H. Gadsden under a plan by which ownership of the property at Charleston will pass to the Southeastern Power & Light Company. He has been first vice-president at Charleston. Mr. Cooper was graduated from Syracuse

University as an electrical engineer. Early in his professional career he served as assistant engineer of the Syracuse Lighting Company. Later he was, in turn, assistant construction engineer, statistician and distribution engineer of the New York & Queens Electric Light & Power Company, operating on Long Island. He next became engineer of distribution of the Counties Gas & Electric Company, Norristown, Pa., and later assistant to the electrical engineer of the United Gas Improvement Company, an organization with many public utility holdings, among them the properties at Charleston which now pass to the Southeastern company.

WALTON CLARK, consulting engineer, The United Gas Improvement Company, Philadelphia, Pa., has resigned as director of The Public Service Corporation of New Jersey after serving 23 years on the board. Mr. Clark was elected a director of the Public Service Corporation at the time of its organization in 1903 and a director of each of the underlying companies as it was organized. The companies, the directorate of which he leaves, include the Public Service Electric & Gas Company, Public Service Electric Power Company, Public Service Railway Company, Public Service Production Company, Public Service Transportation Company, Public Service Railroad Company and the Public Service Stock & Bond Company. Arthur W. Thompson, president of the United Gas Improvement Company of Philadelphia, was elected to succeed Mr. Clark.

WILLIAM H. MCKENZIE, general manager of the Wyandotte County Gas Company, Kansas City, Kansas, celebrated his fiftieth anniversary in the gas business on November 15. His friends made a golden-jubilee celebration out of his entrance into the gas business, and he received many congratulatory letters from executives in the gas industry throughout the United States.

A. C. RAY, treasurer of the Electric Bond and Share Company, New York, N. Y., has been appointed assistant treasurer of the American Gas Association.

ALEXANDER FORWARD, managing director of the American Gas Association, has been elected President of the Civitan Club of New York, N. Y.

FRANK F. CAULEY, manager of industrial sales for The Peoples Gas Light and Coke Company, Chicago, Ill., has severed his connection with that company. Mr. Cauley has been active in association work for many years, being a director of the Illinois Gas Association, and having served as chairman of the Industrial Gas Section of the American Gas Association for the year 1925-26.

W. F. BARRETT has been elected a vice-president of the Union Carbide and Carbon Corporation. He began his association with

the company in 1913, as manager and chief engineer of the Linde Air Products Company.

ROBERT O. JASPERSON, advertising manager of the Central Hudson Gas and Electric System, Poughkeepsie, N. Y., has resigned to become head of the sales department of the Milwaukee Gas Light Company, Milwaukee, Wisc. Mr. Jasperson will leave for the West about January 15.

CHARLES S. HILTON, engineer, industrial service department, the Pawtucket Gas Company, Pawtucket, R. I., has been elected president of the Gas and Electric Club, composed of employees of the Pawtucket Gas Company and the Blackstone Valley Gas and Electric Company.

OUR NEW MEMBERS

GAS COMPANY MEMBERS

Ocean Gas Co., Toms River, N. J.
Indiana-Ohio Public Service Co., Winchester, Ind.
Oklahoma Northern Utilities Co., Ponca City, Okla.

MANUFACTURER COMPANY MEMBERS

Carbide & Carbon Chemicals Corp., New York, N. Y.
Regent Stove Co., Wyandotte, Mich.

ASSOCIATE COMPANY MEMBERS

P. F. O'Keefe Advertising Agency, Inc., Boston, Mass.
Samuel Cabot, Inc., Boston, Mass.
Wm. H. Rankin Co., Chicago, Ill.
McJunkin Advertising Co., Chicago, Ill.
By-Products Coke Corp., Chicago, Ill.
The Portsmouth By-Product Coke Co., Portsmouth, Ohio.

ACTIVE MEMBERS

Trueper, Elizabeth A., Brooklyn Borough Gas Co., Coney Island, N. Y.
Armstrong, M. E., Brooklyn Borough Gas Co., Coney Island, N. Y.
Schavel Jr., J., Brooklyn Borough Gas Co., Coney Island, N. Y.
Holmes, John M., Queens Borough Gas & Electric Co., Far Rockaway, N. Y.
Steinwedell, George, Illinois Power & Light Corp., Granite City, Ill.
Boylan, Matthew A., Jersey Central Power & Light Co., Asbury Park, N. J.
Conkin, William W., New Haven Gas Light Co., New Haven, Conn.
Osius, George, Michigan Ammonia Works, Detroit, Mich.
Sperling, Nathaniel J., The Astoria Light, Heat & Power Co., Astoria, L. I.
McKenna, John H., Alcazar Range & Heater Co., New York, N. Y.
Ward, Frank H., The East River Gas Co. of L. I. City, Long Island City, N. Y.
Menzel, Franz, Gemeinde Wien-stadt. Gaswerke, Vienna, Austria.
Gutner, Hans, Gemeinde Wien-stadt. Gaswerke, Vienna, Austria.
Van Arsdell, Ernest, Interstate Public Service Co., Indianapolis, Ind.

Trent, Walter E., Trent Process Corp., New York, N. Y.

Dobbin, Edwin R., Empire Gas & Electric Co., Geneva, N. Y.

Deker, Frank G., Cruse-Kemper Co., Ambler, Pa.

Jochum, Henry L., Astoria Light, Heat & Power Co., Astoria, L. I.

O'Brien, W. J., Memphis Power & Light Co., Memphis, Tenn.

Kane, James F., Consolidated Gas Co. of N. Y., New York, N. Y.

Phillips, Robert J., Consolidated Gas Co. of N. Y., New York, N. Y.

Lamb, Frank P., Consumers Gas Co., Reading, Pa.

Lindon, Joseph B., Consolidated Gas Co. of N. Y., New York, N. Y.

Gamble, Chas. B., Minneapolis Gas Light Co., Minneapolis, Minn.

Russell, Floyd L., Public Service Production Co., Newark, N. J.

Potter, William S., Elizabethtown Consolidated Gas Co., Elizabeth, N. J.

Baldwin, George C., Public Service Co. of Northern Ill., Chicago, Ill.

deMey, Charles F., Central Hudson Gas & Electric Co., Poughkeepsie, N. Y.

McArthur, John A., Hartford City Gas Light Co., Hartford, Conn.

Greening, G. F., Burroughs Adding Machine Co., Brooklyn, N. Y.

Early, Allan T., Illinois Power & Light Corp., St. Louis, Mo.

Steinhauser, Carl A., Illinois Power & Light Corp., St. Louis, Mo.

Noack, Martin R., Illinois Power & Light Corp., St. Louis, Mo.

Hooper, Alfred L., Illinois Power & Light Corp., St. Louis, Mo.

Eckert, Frank R., Wisconsin Valley Electric Co., Wausau, Wis.

Dean, John P., Washington Gas Light Co., Washington, D. C.

Sangster, William, Danielson & Plainfield Gas & Electric Co., Danielson, Conn.

Bailey, Herbert, U. S. Bureau of Standards, Washington, D. C.

Duncan, William R., Philadelphia Suburban Gas & Electric Co., Chester, Pa.

Mackie, J. William, Utica Gas & Electric Co., Utica, N. Y.

Ennis, Richard A., Washington Gas Light Co., Washington, D. C.

Lasher, C. E., Puget Sound Gas Co., Everett, Wash.

Porter, George E., Carolina Power & Light Co., Raleigh, N. C.

Matlack, William H., Illinois Power & Light Corp., East St. Louis, Ill.

McIlhenny, Francis S., Helme & McIlhenny, Philadelphia, Pa.

Tomlinson, Kenneth C., Pacific Meter Works, San Francisco, Calif.

McClenahan, Robert W., Helme & McIlhenny, Philadelphia, Pa.

Post, G. A., James B. Clow & Sons, Philadelphia, Pa.

O'Brien, W., Montreal Light, Heat & Power Cons., Montreal, Que., Canada.

Kohlhepp, C. E., Wisconsin Public Service Corp., Milwaukee, Wis.

Affiliated Association Activities

New England Gas Association

THIS Association is now issuing a monthly periodical "New England Gas News." Its purpose is a fine one: To inform members of the many activities fostered by the New England Gas Association. The publication, a small one, is well written and neatly printed.

The New England Gas Association has signed a contract for the publication monthly of the *Everyday Magazine*. This will be a thirty-two page magazine for distribution by gas companies to customers. It will be an attractive and interesting paper not entirely devoted to gas, but with enough gas matter in it to keep the gas industry always before the customers.

The first annual meeting of the New England Gas Association will be held at the Bancroft Hotel, Worcester, Mass., on February 23rd and 24th, 1927, according to announcement made by F. C. Freeman, President. This occasion will be the first time the three divisions of the Association have met together since the amalgamation last February, when the old New England Association of Gas Engineers, the Gas Sales Association and the Industrial Gas Association, became respectively the Operating, Sales and Industrial Divisions of the new Association.

The program will be divided into two-hour periods, meetings to be from 10 to 12 in the morning and from 2 to 4 in the afternoon.

Each division will be held responsible for a portion of the program and it is planned to arrange the schedule so that every session will have at least one subject to offer that will be of interest to the majority of the gas men present.

Roy Simpson, Advertising and Sales Manager of the Liggett Stores, will address the general session on Advertising and Merchandising.

The Sales Division has arranged for John A. Keane, Sales Manager of Hambleton & Company, to present a paper on Employee Personnel.

The Industrial Division will be represented by J. P. Leinroth, of the Public Service Gas & Electric Company. The subject to be presented will be announced later.

Several other speakers prominent in our industry have been invited to address the meeting and it is certain that when the program is completed it will fully measure up to the high standard of previous New England gas conventions.

Manufacturers of four gas refrigerators have accepted invitations to exhibit their ma-

chines at the convention and the gas men of New England who did not get to Atlantic City to attend the recent A. G. A. convention will have an opportunity to inspect them.

E. H. Bauer, of Worcester, Chairman of the Entertainment Committee, promises "something different" in the way of amusement for the visitors.

E. A. Taylor, acting secretary, has announced that the advance registration is unusually large and there is every promise that the meeting will be the biggest that has ever been held.

Southwestern Public Service Association

SECRETARY E. N. Willis announces that the 1927 Convention of his Association is to be held in New Orleans, La., April 26th to 29th.

R. G. Soper, for many years active in the manufactured and now in the natural gas industry, Secretary of the Dallas Gas Co., has been elected treasurer of the Southwestern Public Service Association.

Mid-West Gas Association

THE Annual Convention of this Association will be held in St. Paul, Minn., April 21 and 22, 1927, with headquarters at the St. Paul Hotel, according to announcement of Secretary H. R. Sterrett.

The sixth annual gas meter short course held December 7, 8, 9 and 10 at Iowa State College at Ames, Iowa, surpassed all others in attendance. There were 147 students from fifteen states registered for the course.

From its inception the short course has been a joint endeavor of the engineering extension department of the college and the Mid-West Gas Association—formerly the Iowa District Gas Association. Members of the Association in Iowa, Nebraska, Minnesota, North and South Dakota have sent men from their meter shops each year and students from many other states have been attracted.

George A. Lane, superintendent of meters, The Peoples Gas Light and Coke Company, Chicago, who has been in charge of instruction for several years, again served in that capacity this year. He was assisted by William Rosinia. These instructors lectured the entire student body on tin meters and after these lectures the group was divided. Those wishing the actual bench practice of repairing and testing meters were sent to benches fully equipped for this practice. The other group was instructed in a series of specially prepared papers, followed by general discussion.

Some of the lectures on this program were: "Meter Department Records"—C. R. Stahl. "House Governors"—T. J. Collins. "Care and Handling of Meters"—Robert Fearnside. "Making a Pressure Survey"—Mr. Fischer. "Meter Installations"—H. E. Heil. "Relation of the Gas Department Employee to the Public"—A. W. Borden. "Unaccounted for Gas"—A. H. Abbott.

An added feature of this year's course which was declared a great success by short course officials was a conference of plant superintendents and engineers held the final day of the course. These men heard a series of special papers on plant management and operation.

The program for the short course was arranged by a special committee of college men and members of the Mid-West Gas Association. The personnel of this committee follows: C. R. Stahl, Davenport, Iowa, Chairman; George A. Lane, Chicago; D. C. Faber, Iowa State College; V. L. Hein, Iowa State College; A. T. Barrett, Chicago; E. C. Falvey, Davenport; R. F. Galpin, Muscatine; Robert L. Klar, Des Moines; and O. M. Hoxie, Mankato, Minn.

Pacific Coast Gas Association

THE 1927 Convention of this Association will be held in Santa Cruz, California, during either the second or third week of September.

Illinois Gas Association

THE Illinois Gas Association will hold its annual convention jointly with the Illinois State Electric and Illinois Electric Railways Associations in Springfield, Ill., on March 17 and 18, 1927.

Indiana Gas Association

THE 1927 meeting of the Indiana Gas Association is scheduled to be held at West Baden, Ind., during the month of June. The exact dates will be announced in due time.

Pennsylvania Gas Association

ONE hundred and forty-four active and enthusiastic Pennsylvania gas men attended the Mid-Year Meeting of the association, held December 6, 1926, at the Hotel Valley Forge, Norristown, Pennsylvania. Under the able leadership of the president, Allen C. Taylor, of the Consumers Gas Company of Reading, Pa., together with the assistance of the versatile chairman of the Papers and Program Committee, W. G. Murfit, of the Bucks County Public Service Company, a full and varied program was presented.

The lighter side was not forgotten in the group singing, and in excellent solos rendered

by an eminent local singer. This music, together with an address by the secretary of the Norristown Chamber of Commerce, as well as the address by Dr. Samuel Schmucker, professor emeritus of the State School at West Chester, Pa., provided a change from the more technical discussions.

After the meeting was opened by President A. C. Taylor, an address of welcome to the visitors was made by Herbert H. Ganser of the Counties Gas and Electric Company.

The Association is in a healthy and thriving condition, as was evidenced by the report of the membership committee, presenting the applications for thirty-four active, and four associate memberships.

Recognition of the affection and esteem in which L. R. Dutton, now president of the Jenkintown Trust Company, Jenkintown, Pa., is held by the members of the Pennsylvania Gas Association, was evidenced in the unanimous election of Mr. Dutton as an honorary member.

The active work and co-operation with education institutions in Pennsylvania on behalf of the Pennsylvania Gas Association was reported by W. Griffin Gribbel. Mr. Gribbel stated he and C. E. Reinicker represented the Pennsylvania Gas Association and the consolidated committee work was handled by Major J. S. S. Richardson, director of the Pennsylvania Public Utility Information Committee; and that it was planned to do more work in Pennsylvania in the coming year than had ever been accomplished before.

Resolutions were presented to the membership in connection with the deaths of Lucius Bigelow, of Buffalo, and H. T. Carkeek of Philadelphia.

Following the business session an excellent paper on, "Budgetary Control and Why" was presented by Harold J. LaWall, of The United Gas Improvement Company of Philadelphia.

J. G. Moxey, superintendent of motor transportation of the Atlantic Refining Company of Philadelphia, discussed motor transportation problems.

All those present were guests of the Counties Gas and Electric Company, Schuylkill, Pa., at luncheon, following which Major Richardson reported on educational work, and A. Gordon King, service engineer of the American Gas Association, outlined in a brief talk, the activities of the various sections and their plans for the coming year. This talk took the form of an interview with each individual member of the headquarters staff and concluded by reading a message of greeting from A. B. Macbeth, president of the American Gas Association, in which he especially commended, both to individuals and to

the association, the three-to-five-year plan and said that if each member of the Pennsylvania Gas Association should within his company, and within his field of activity, devote himself to one special line of effort with regard to this future program the results would be amazing. President Macbeth's message was received with the greatest enthusiasm and a copy of it was incorporated in the records of the Pennsylvania Gas Association.

Live round-table discussions followed on "Service to Customers" and "Fuel Handling at the Works." The interest in both these subjects was sustained and the discussion was complete. The fuel-handling discussion was initiated by John S. Haug of The United Gas Improvement Company who used lantern slides to illustrate his talk.

New Jersey Gas Association

THIS association will hold its mid-year meeting, Friday, Jan. 28, at the Stacey-Trent Hotel, Trenton, N. J. A particularly interesting and lively program has been arranged, according to Secretary Louis Stoeker.

Public Utility Association Secretaries

THE fifth annual conference of the informal organization made up of secretaries of public utility associations was held December 9th and 10th at the St. Charles Hotel, New Orleans, La. About thirty-five secretaries representing all public utilities and from every section of the country participated in the discussion lasting the whole two days. These conferences are noted for full and frank discussions of all phases of association work which cannot but benefit the associations represented. President E. N. Willis, of the Southwestern Public Service Association, did not allow his duties as the presiding officer to interfere with his active participation in the discussions which were lively at all times. The Secretary, Horace M. Davis of the Middle-West Division of the N. E. L. A., was warmly commended for the manner in which he promoted and secured attendance at the conference.

The sessions were opened with an address of welcome by Dr. H. M. Blaine, Director Mississippi-Louisiana Public Utility Information Bureau who briefly described the old and distinctive city of New Orleans.

Following is a list of the subjects discussed and the leaders: "Interim Committee Activities," D. L. Gaskill, Secretary, East Central Division of N. E. L. A.; "Building the Annual Budget," John N. Cadby, Secretary Wisconsin Utilities Association; "Making the Convention Program," O. A. Weller, of Denver, Colo.; "About District Conferences," John W. Lapham, of Minnesota; "Securing Information for Association Work from Members," K. R. Boyes, Secretary, American Gas Association;

(اغتنموا الفرصة)

ابتداء من ٧ ايلول والى مدة محدودة فقط تقدم شركة الغاز البروكلينية
"مبما تعويضاً" لاجلقة الغاز
وميزة هذا البيع ان الشركة تسترجع الوجاقات القديمة وتضع مكانها
وجاقات جديدة وتخصم قيمة معلومة من المال مقابل الوجاق القديم
ويختلف هذا الخصم بالنسبة لنوع الوجاق وعمره
زيارة واحدة الى ادارة الشركة في مدة هذا البيع تقتكك بوجوب
انتهاز هذه الفرصة لتبادرة لتحقيق ما تتمينه من الراحة والتسهيلات في
الطبخ التي لا تاتي الا بالحصول على وجاق جديد

The Brooklyn Union Gas Company believes in foreign language newspaper advertising. This advertisement is from the Syrian Eagle.

"Cooperation Between Hotel Management and Convention Secretaries," F. C. Skillman, Chase Hotel, St. Louis; "Secretary's Part in Legislation," A. Bliss McCrum, West Virginia Public Utilities Association; "What Can We Do About It?" by John Mellett of Indiana; "National and State Association Cooperation," A. J. Marshall, Secretary, National Electric Light Association. Other phases of association work not appearing on the program were introduced and thoroughly discussed.

John N. Cadby was honored by the secretaries to serve as their president for the coming year and Horace M. Davis was similarly honored by his re-election as the secretary. The retiring president, E. N. Willis, was given a unanimous vote of appreciation for his untiring efforts since the formation of the secretaries organization.

H. B. Flowers, President, The New Orleans Public Service, Inc., was host to the secretaries and their wives at a dinner followed by a theater party.

J. J. MORGAN PUBLISHES

BOOK ON GAS INDUSTRY

THE first volume of "Manufactured Gas — A Textbook of American Practice," by Jerome J. Morgan, associate professor of chemical Engineering, Columbia University, N. Y., is now available. Professor Morgan is both the author and publisher.

The volume is quarto size, consisting of 500 pages plus an index. It contains 241 illustrations. The cost is \$7.50, bound in cloth. Orders may be sent to Professor Morgan or to the Editor of the MONTHLY, who will see that they are forwarded to Professor Morgan.

The first volume deals with production exclusively.

Gas Scores

(Continued from page 22)

two hours longer when the gas was turned off. During the 30-day period when this oven was operated 266,000 pounds of cores were dried with 241,112 cubic feet of gas, or each ton of green cores required 1813 cubic feet of gas to dry them. The following conclusions were arrived at:

The operating time should never be less than four hours and when the oven is cold one-half hour should be added to the time of operation.

Operating time for various loads:

6,000 to 8,000 pounds wet oil sand cores	4	to 4½ hrs.
8,000 to 10,000 pounds wet oil sand cores	4½	to 5 hrs.
10,000 to 13,000 pounds wet oil sand cores	5	to 5 hrs.
10,000 to 13,000 pounds wet oil sand cores	5	to 6 hrs.

The second test of the oven without insulation was made during the month of April, 1926. The dried cores were largely oil sand and a few compound. Table I is a tabulation of the operating data secured. On April 7, 1926, approximately 4500 pounds of oil sand cores and 142 pounds of compound cores were dried, the total weight of cores dried being 4642 pounds. The weight of cores dried was determined by weighing a cubic foot of oil sand and compound and after measuring each core, its volume was determined, and then the weight was calculated. Each weight given is, therefore, very close to the actual weight. In order to dry this amount of cores 4870 cubic feet of gas, having a heating value of 550 B.t.u. per cubic foot, were used. Four hours were required to dry the cores with a five pound starting pressure, which decreased gradually as the temperature increased. Two hours and 45 minutes were required to reach a temperature of 380° F. and a holding pressure of three pounds. The temperature of the oven ten hours and 30 minutes after the gas was shut off was 148° F. This temperature would unquestionably have been greater if the oven had been insulated.

The insulated oven was operated and the data secured is shown in Table II. The cores dried in this oven were made of compound and were oftentimes very large, which meant that the car usually contained partially dried cores and wet cores. Most of the large cores require two heats to dry them. Under these conditions it is impossible to compare the results of the uninsulated oven with the insulated oven. However, the insulated oven reached the holding temperature about 45 minutes sooner than the uninsulated oven.

When gas was first used in these ovens, one was heated by means of a tunnel which ran the full length of the oven under the car track. The top of the tunnel was checker bricked, allowing the heat to come up through and around the car load of cores. The tunnel burner was given a thorough test and finally replaced by the manifold burner. The following results were obtained by using the tunnel burner: Cores directly over the tunnel were burned; cores on both sides of the oven were often green after heating; the core oven car was badly warped on account of being directly over the tunnel; the oven was not uniformly heated; the fuel consumption was very high.

All of the above unsatisfactory results were eliminated by the installation of the manifold burner as shown in Fig. 1.

The items of expense in using a coke-fired oven at this plant showed that approximately 6000 pounds of oil sand cores required about 600 pounds of coke to dry the cores, or 0.1 of a pound of coke per pound of wet core. In order to charge the oven with coke and clean out the ashes, four hours of labor were required and in addition to this some one had to watch the oven when it was being operated. The grates in these ovens had to be replaced about every six months at a cost of about \$10 per set per oven.

In Memoriam

Sanford N. Whitwell, Washington Gas Light Company, Washington, D. C.
Charles Wilde, Philadelphia Suburban Gas & Elect. Co., Chester, Pa.

GENERAL

"If They Can't Come to You, Go to Them"

The Educational Bus of The Westchester Lighting Company Helps the Busy Housewife Who Can't Attend the Usual Demonstrations

CARRYING the mountain to Mahomet seems to be a commonplace occurrence. The Westchester Lighting Company, which serves Westchester County, New York, with gas and electric service, is taking its home service demonstrations to its customers, since it has found that a great many customers cannot avail themselves of the lecture-demonstrations given at the district offices of the company. The means employed is the Educational Bus, which is shown in the accompanying illustrations.

The Bus is completely equipped with piping for gas demonstrations. Curb boxes are tapped for the gas supply. The Bus has a seating capacity of 37, and the arrangements are such that everyone can see what is being demonstrated. According to present plans it will tour the county,

the field of operation covering more than 400 square miles including four cities, 23 villages, and 16 townships.

Lecture demonstrations are given, which are the same as those given in the auditorium of the company's offices. These lectures include cooking demonstrations and the usual instruction in labor-saving appliances, hints for the housewife, and help in adjusting appliances, etc. In addition, household arts classes in the elementary schools are given instruction consisting of an educational talk on appliances and a simple cooking lesson. This is given during the regular school period and is a part of the regular course. No other means of reaching the school children would prove so efficient, according to the results already credited to the Bus.



The Educational Bus of the Westchester Lighting Company

25,000 Learn of Gas

(Continued from page 38)

Morris, sales manager, Kings Appliance Corporation, describes the success of the Blue Star home of the Kings County Lighting Company.

"The photographs of interior and exterior view of our Model House, which I believe is the first Blue Star Home to be completed in the metropolitan area, give an idea of the type of home we demonstrated.

"I regret that I have not the photographs showing the crowds. There were times when the street was blocked with automobiles, especially on Sundays.

"During the two weeks this building has been opened, we estimated there have been more than 12,000 people visiting it. The various uses of gas demonstrated in this building has been a revelation to many of its visitors especially the house heating boiler and the garbage incinerator.

"Our advertising program covered about a period of three months before the opening of the building, or beginning about the time the construction was started. In this advertising we talked first principally on piping, afterwards tak-

ing up the various appliances telling what they represented in labor saving and convenience.

"About two weeks before the opening, we announced the Blue Star plan, and have since been running the copy of this plan furnished by the American Gas Association which ties in very nicely with the copy that we were using before the Blue Star Plan was mentioned."

THE HOME AT HAVERHILL

John J. McKearin, sales manager, the Haverhill Gas Light Co., Haverhill, Mass., submits the following tabulation to show the success of his company's Blue Star Home:

Number of days Home was open	16
Number of days which Home was practically closed all day	4
Actual number of days open	12
Number of people attending	6668
Number of local firms cooperating, including builder and gas company	10

The main attractions were the gas house heating installation and the mechanical refrigerator. The comments received from the visitors were very favorable.



THIS IS ONE OF THE WILLIAMS BROS. ALTRITY HOMES

If you'd like to see how electrical appliances complete the equipment of the modern home, drop into the Blue Star Home—see the

Big Gas Water

Electric Dining Stoves

Special Electric Refrigerators

Gasoline Vacuum Cleaners

Haverhill Electric Co.

Tomorrow, Friday, October 29th, This New "BLUE STAR" HOME, 106 Park Street, Bradford, Will Be Opened for Public Inspection—A Modern Home, Completely Equipped and Furnished from Cellar to Chambers!

THE BLUE STAR HOME

106 Park Street (South), Bradford

Built and Owned By
WILLIAMS BROS., 115 Cady St., Bradford

Opening Day Tomorrow!

McCann Furniture Co.
80-81 HERRINGBANK STREET
SAVERHILL.



THIS IS ONE OF THE WILLIAMS BROS. BLUE STAR HOMES

Complete Gas Service In THE BLUE STAR HOME

The Gas Company
Telephone 121

THE BLUE STAR HOME

Wall Papers

Table Silverware

Community Plates

A. Rosenthal

ATHLETIC

Wetherill's Paints

Yes, Sir!

Wetherill's Paints

THE LESLIE DRY GOODS CO.

Beautiful Window Draperies

All Shades and Draperies in the "Blue Star" Home

Leslie's Interior Decorating Dept.

Reproduction of two-page newspaper advertisement used by the Haverhill Company

ACCOUNTING SECTION

A. L. TOSSELL, Chairman

EDWARD PORTER, Vice-Chairman

H. W. HARTMAN, Secretary

Charleston's New Sundry Sales System**System Developed by Company in Southern City
Embodies Many Features and Advantages****By H. H. PACE**

Comptroller, Charleston Consolidated Railway & Lighting Co.

IN our system of sundry sales accounting, which embodies many advantages, sales orders are issued in quadruplicate. The duplicate is given to the customer, it being the only bill he receives. The original and triplicate copies are sent to the delivery department, and the fourth remains in the book as a follow-up record.

Space is provided on the sales order for the customer to receipt for delivery of the article and for the workman to make out his report of the material used in installation, and there is a form of affidavit for use when the sale is recorded as a chattel mortgage by the credit department.

When delivery is made and installation completed, the original copy is returned to the accounting department for routine handling, while the triplicate copy is retained by the delivery department. A requisition on the storeroom for the article called for on the sales order is issued by the delivery department, which is required to show the sales order number on each requisition.

Cash sales as well as original payments on monthly installment accounts are recorded on a cash sales register.

The cash sales coupons come in flat packets instead of rolls, which make the work much easier to audit and more accessible in every way.

The original and duplicate coupons are removed from the register and handed to the cashier, who receipts for the amount paid. The original copy is then given to the customer. The duplicate, retained by the cashier, is sent to the bookkeeping

department at the end of the day. The third copy folds up in the register, and the accumulation of each day is removed by the chief clerk to verify sales and cash receipts as well as to classify the sales.

The commercial agent also holds a key to the machine, and makes a summary of sales from the coupons.

When a customer purchases a range for \$75.00 and pays \$3.00 down, a sales order stating the terms is issued, and a cash coupon is made out giving the name and address of the customer, the article purchased, and the amount paid on account, with the notation "first payment sales order No. 900."

All payments on account, after the sale has been set up on our books, are made direct to the cashier.

MONTHLY INSTALLMENTS

In designing this sheet which is inserted behind customer's service account, the theory of the systems used in mercantile establishments was considered. They give the customer a copy of the sales order, so that he will know how much is to be paid each month. If the customer does not pay, they send a collector. Our practice is to put the amount on the monthly service bill, and collect both at the same time. Payments for service and sundry installments are posted with a rubber stamp.

The sundry ledger sheet shows the amount of the monthly installment and the month in which it is due. For example, an appliance sold in April for \$20.00, the initial payment being \$2.00, or 10 per cent, the balance payable in nine

monthly installments of \$2.00, is recorded as follows:

April	\$2
May	2
June	2
July	2
August	2
September	2
October	2
November	2
December	2
January	2

The balance due each month is shown in the column on the right. For instance, if all installments to and including August are paid, the balance shown in this column on September 1 would be \$10.00.

To identify them easily, these sheets are made $\frac{3}{8}$ " higher than the regular ledger sheets, and of a different color.

When a customer moves from one address to another the sheet is immediately transferred to the new address.

Just enough information is given to identify the article sold, as full details of the transaction are shown on the sales order, the number of which appears on the ledger sheet.

Every three months the paid-up accounts are removed from the ledgers, and filed alphabetically. If the customer makes another purchase the sheet is again placed in the current ledger, and the new account entered.

We have a separate ledger for each of our thirty districts. This plan of accounting enables our commercial agent to determine easily and quickly the number of merchandise accounts in any particular district, and this information is of value to him in working out sales campaigns and assigning fertile territory to his salesmen.

When sales orders reach the bookkeeping department, the supervisor of ledger work, after arranging them according to ledgers, passes them to the clerks in charge of the various ledgers, who enter them, placing the folio number on each sales order.

They are then entered in a daily sales summary, which shows the ledger folio, sales order number, amount of the sale,

amount charged, cash sales, C. O. D. sales, and accounts credited. Totals of the daily summary are posted to a sundry sales credit record. A record is also kept showing the amount debited daily to each individual consumer's ledger.

Sales orders are filed numerically. At regular intervals they are checked against the quadruplicate copies in the sales order books, which are sent to the bookkeeping department by the new business department when it is finished with them. This eliminates the possibility of any order going to file without being charged.

Aspects of Smoke

(Continued from page 34)

off-hand, as has been done by some writers, that low-temperature carbonization is inherently wrong in principle and offers no economic prospects of success. It appears to be a question merely of reducing costs or of raising form-values in the products, and these things are not beyond the bounds of possibility.

In conclusion and summary we believe the pre-treatment of coal for making smokeless fuel will go ahead along all three lines, high-temperature coke, low-temperature or "semi" coke and gas. Each will find a field to which it is peculiarly fitted and in which the consuming public will learn eventually to appreciate its virtues. Before prepared smokeless fuels, however, can have wide general application, their cost as related to that of coal will have to be lowered through simplification and improvement of processes and enhancement of by-product values. New systems of pre-treatment of coal, such as low-temperature carbonization, will obtain a sure footing commercially only when they can show by lessened costs and better by-product values a good margin of profit to induce the investment of capital. Their best chance is in the field of the lower grade, higher oxygen coals of the midwest where a greater enhancement of value may be obtained, as between a low-priced raw coal and a high-grade conversion product.

PUBLICITY AND ADVERTISING SECTION

HARLOW C. CLARK, Chairman

E. FRANK GARDINER, Vice-Chairman

CHARLES W. PERSON, Secretary

A Penny Saved for the Customer is a Customer Saved for the Gas Company

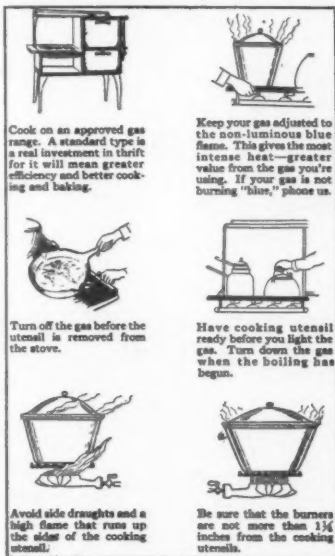
National Thrift Week Offers a Splendid Opportunity for the Gas Man to Teach the Economical Use of Gas

JANUARY brings an exceptional opportunity to the advertising and publicity manager to broadcast an important message on the momentum of a national movement that touches nearly every gas customer in the country, namely, Thrift Week. Observation of this week is becoming more general every year. It starts with the anniversary of Benjamin Franklin's birthday, and lasts through the week to January 23.

Advertising copy stressing thrift in the use of gas is especially timely, and provides an appeal to that most sensitive barometer of business conditions, Mr. Everyman's pocketbook. Considerably flattened after the holiday season, the pocketbook is in a feeble condition and recuperative opportunities, as offered by Thrift Week, are kindly received.

The gas company differs from many merchants in that it is interested in the use of its product. Few merchants care how a suit of clothes or a pound of sugar is used; they are chiefly interested in the sale. The gas company, on the other hand, knows by experience that an efficient use of gas service makes for contented, satisfied customers and public good will.

An advertisement prepared several



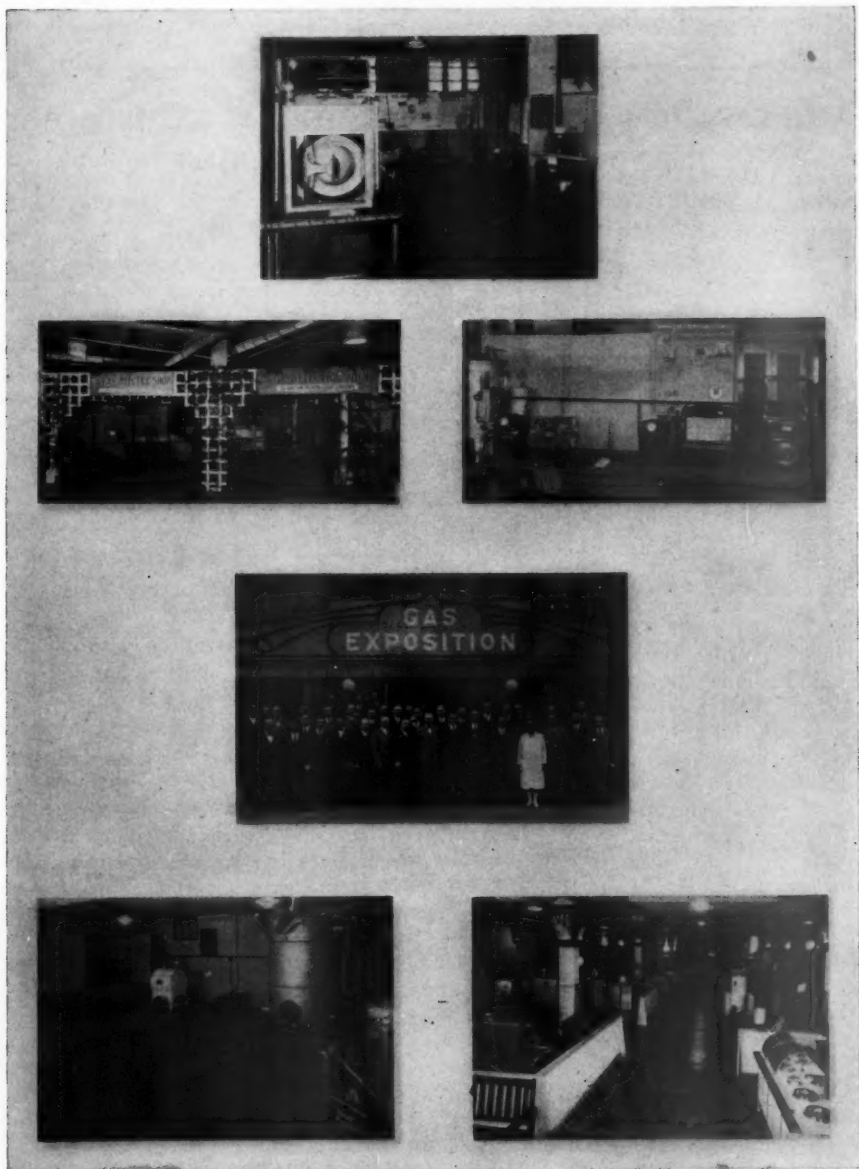
A Few Thrift Suggestions from the A. G. A. Advertising Service

years ago, under the caption, "To Our Customers," gives the reasons why the gas company wants its customers to be economical in the use of gas. The advertisement reads: "Get the most for your money out of the gas you use. Make your gas bills thrift bills. We help you to do this when we aid you in choosing the most economical gas appliances and tell you how to avoid waste by using them intelligently. Waste of gas means big bills, complaints, investigations, rechecking, letter writing, delayed payments, and other expenses; and worst of all, it means dissatisfied customers. Satisfied customers are worth more to us than any revenue derived from gas which is wasted. We want no money we do not earn."

House Heating Booklet

IN support of its new business campaign, the house heating department of the Tacoma Gas and Fuel Company division of Mountain States Power Company has published an attractive sixteen page booklet, under the title "What Price Comfort?—In Your Home."

After defining "comfort" as "a state of quiet enjoyment," the booklet goes on to point out the advantages of gas heat for homes, emphasizing the necessity for using the proper appliances, properly installed.



The Dayton Exposition brought the story of gas home to Dayton people. The graphic displays were a composite picture showing the development of gas from the time it was brought to the surface from the well to when it was used in the appliance in the consumer's home or factory. The displays of appliances, model basement, etc., attracted an unusual amount of attention from every visitor as they were able to learn the whys and wherefores of gas service.

MANUFACTURERS SECTION

W. E. STEINWEDELL, Chairman

C. W. BERGHORN, Secretary

H. L. WHITELAW, Vice-Chairman

Dayton Entertains Thirty-Four Thousand**First Annual Gas Exposition Held by Dayton Power and Light Company Is Phenomenal Success**

THOUSANDS of Dayton, Ohio, citizens will long remember the first Dayton Gas Exposition, which was held November 4 to 13 under the auspices of The Dayton Power and Light Company's gas division.

The exposition was unique in that no admission was charged and all space was furnished free of charge to the exhibitors. It had but one purpose and that was to offer to the public an opportunity to see all of the latest appliances and equipment now being provided by the gas industry. The slogan, "If it's done with heat, you can do it better with gas," was carried out to the fullest extent. In a large majority of instances the equipment shown was in actual operation.

Since the merger of The Dayton Power and Light Company with the Columbia System, the gas division has undergone extensive development and today the citizens of Dayton are assured of an adequate and dependable supply of natural gas for any and all purposes. The response to the exposition was most gratifying, both from the public and the manufacturers.

A luncheon tendered the representatives at the exposition and the Dayton dealers by The Dayton Power and Light Company officials brought out the fact that if the company wished it could be an annual affair as the interest and enthusiasm shown and expressed during the exposition was of a most substantial character.

While every type of gas appliance and device for the home and domestic user was shown, the industrial equipment was one of the main features of the entire show. One whole section was moved

practically intact from the A. G. A. Convention at Atlantic City. As Dayton is a very large manufacturing center of diversified products, employing a very large percentage of skilled mechanics, the visitors at the show were very appreciative of the opportunity afforded to view and study the latest gas equipment as an aid to lowering manufacturing costs. This, coupled with the exceptional opportunity to meet and discuss their problems with trained and expert engineers, meant a great deal to both the visitor and the manufacturer, not to say the indirect benefits which will be achieved later by the company. One entire evening was devoted to a special program for the 1800 members of The Dayton Foremen's Club who responded en masse for the occasion. The show also attracted hundreds of visitors from nearby cities and communities. The total attendance during the exposition was about 34,000.

A consistent publicity campaign was inaugurated by the company some weeks previous to the opening of the exposition. The Sunday previous to the opening, two special sections of eight pages each were included with the two Sunday papers. Another section in another paper was used during the opening week.

The following manufacturers were represented at the exposition either directly or by local dealers:

L. J. Mueller Furnace Co. . . .Milwaukee, Wis.
 Pennsylvania Furnace & Iron Co. .Warren, Pa.
 Crane & Co.Cincinnati, Ohio
 Root Manufacturing Co.Cleveland, Ohio
 Home Incinerator Co.Milwaukee, Wis.
 Cribben & SextonChicago, Ill.
 The Honeywell Heating Specialty Co.
Wabash, Ind.
 J. H. Grayson Mfg. Co.Athens, Ohio
 General Gas Light Co.Kalamazoo, Mich.

The Surface Combustion Co. ... Bronx, N. Y.
 J. B. Clow & Sons Chicago, Ill.
 W. H. Kiefaber & Co. Dayton, Ohio
 Ironton Stove & Mfg. Co. Ironton, Ohio
 C. L. Bryant Corp. Cleveland, Ohio
 Cleveland Heater Co. Cleveland, Ohio
 American Ironing Machine Co. ... Chicago, Ill.
 Peerless Heating Co. Pittsburgh, Pa.
 Mears-Kane, Ofeldt, Inc. Philadelphia, Pa.
 Minneapolis Heat Regulator Co.
 Minneapolis, Minn.
 Ruud Mfg. Co. Pittsburgh, Pa.
 Welsbach Co. Columbus, Ohio
 Resnor Mfg. Co. Mercer, Pa.
 United Utilities & Eng. Corp., Philadelphia, Pa.
 The Maxon-Premix Burner Co. ... Muncie, Ind.
 The Scientific Heater Co. Cleveland, Ohio
 The Hoover Mfg. Co. Cincinnati, Ohio
 Johnston Gas Appliance Co. ... Cedar Rapids, Ia.
 Time-O-Stat Corp. Milwaukee, Wis.
 Kauffman-Norton Co. San Francisco, Calif.
 G. S. Blodgett Co. Burlington, Vt.
 Universal Gypsum & Lime Co. ... Chicago, Ill.
 American Gas Furnace Co. ... Elizabeth, N. J.
 The Bryant Heater & Mfg. Co., Cleveland, O.
 Sweet & Doyle Foundry And Machine Co.
 Troy, N. Y.
 American Gas Products Co. ... New York, N. Y.
 Michigan Stove Co. Detroit, Mich.
 Patric Furnace Co. Springfield, Ohio
 Columbus Heating and Ventilating Co.
 Columbus, Ohio
 Estate Stove Co. Hamilton, Ohio
 Pittsburgh Water Heater Co., Pittsburgh, Pa.
 Hoffman Heater Co. Louisville, Ky.

In addition to the above manufacturers there were various exhibits arranged by the Dayton Furniture Dealers Association and the Master Plumbers Association. The departmental displays of the company's gas division attracted an unusual amount of attention.

One of the most interesting features of the exposition was the cooking school and food lectures which were given each afternoon during the exposition. Hundreds of women availed themselves of this opportunity to not only learn of the latest cooking methods, but also to see the latest domestic appliances as shown during the show. The cooking demon-

strations and food talks were personally conducted by Miss A. Deane Dowell, home service counsellor of The American Gas Association. Mrs. Luella Fisher, of the Erie Stove Company, was also present and gave a very interesting talk during the last two days of the exposition on "The Utilization of Gas in the Home."

The Industry and A. G. A.

(Continued from page 28)

of the brevity to which he could limit his talk. The main sessions of the convention took place in the morning and the sectional meetings in the afternoon.

Everybody in the United States is given the opportunity of learning. The largest gas companies have detailed educational courses for all in their employ, no matter what line of work may be followed out. They also have their own journals (house organs), which concern themselves not merely with technical matters, but with all sorts of personal items, birthdays, sports, football, baseball, photography, etc. The names of numerous employees are published and portraits are frequently printed. This publication of the pictures of known or particularly prominent personages is not due to any personal vanity, but has for its purpose to make these people well known and to honor them. There are no classes, no ranks, and no titles, but those who accomplish anything are respected by all.

The laboratory of the American Gas Association was established one and one-half years ago in Cleveland. It is concerned at the present time with the examination of gas appliances with the idea of determining the formation of carbon monoxide.



Window display, used by the safety department of the Southern California Gas Company, Los Angeles, Cal., that shows equipment used to train employees in safety work. It shows trophies won by two companies in the San Francisco Safety Conference

INDUSTRIAL GAS SECTION

H. O. LOEBELL, Chairman

C. W. BERGHORN, Secretary

F. C. MACKEY, Vice-Chairman

Why a Speakers' Bureau

By H. HOWARD SMITH

Engineer, Boston Consolidated Gas Co., Chairman, Speakers' Bureau, Industrial Gas Section

THERE is absolutely no question but that more general public information favorable in nature is going to make it much easier to sell gas for industrial purposes. Not only will people who actually buy the gas for industrial purposes know more about it, but the public will be more inclined to buy articles where the heat treating is done with gas. A favorable attitude and a truly marvelous speeding up of sales have always followed the successful dissemination of favorable information among the general public.

A well organized speakers' bureau giving talks all over the United States is a direct and economical method of spreading the desired information. It also has other great advantages. When a speaker addresses an audience, he has an opportunity to answer questions. The questions asked indicate the points not made clear and which should be explained more fully in future talks and indicate what proves of the greatest interest to the audience. In this way much extremely valuable data may be gathered. In fact, data that is needed in all forms of publicity can be gained that could not be secured in any other way with so little effort. The result is that all publicity that may be used in the future is made much more effective.

Two examples will serve to show what has actually been accomplished. It is certain that a national bureau will be able to accomplish results far greater than those these local efforts have produced.

The first example is that of a certain gas company which faced this situation. The city council was to employ an engineer to investigate the company. Poli-

ticians who were opposed to the company were making all the political capital out of the case they could. The gas company in the past had adopted an attitude of rather consistent silence.

At this time, however, it was already organizing and getting into operation a company speakers' bureau. Talks were given before local organizations all the way from the engineering society to women's clubs. This bureau was well under way and many talks had been given before the committee of the city council was ready to decide upon the engineer to engage. The politicians began to become less aggressive. In the end an engineer was selected who brought in a favorable report.

In our territory we have given industrial talks to various organizations and over the radio. The results have been such that we cannot help feeling very enthusiastic about them. The path to industrial sales has been made smoother. We are certain that sales have been made that could not have been made at least so soon and so easily.

There is the case of one talk that was given by an industrial gas man in one of our New England Cities to a section of an engineering society that the industrial salesman in that city credits with enabling him to close a contract with one of the largest potential users of industrial gas in the territory served.

What the speakers' bureau committee of the Industrial Section of the American Gas Association is striving to do is to organize this work over the entire country to the end that every section may benefit to the same degree that those sections

(Continued on page 58)



Problem: Find the sales argument for using gas to heat homes

Teaching the Housewife

(Continued from page 40)

Ranges	Sold	....	452
Water Heaters	"	....	44
Water Heater Outfits	"	....	75
Space Heaters	"	....	160
Grates	"	....	30
Incinerators	"	....	10
Furnace Burner Sets	"	....	65
Gas Furnaces	"	....	44
Laundry Stoves	"	....	39
Clothes Dryers	"	....	3
Time-O-Stats	"	....	8

Accompanying this story is a reproduction of a report of an inspection made at the home of George Wear, in the form of a card which is kept on file in the offices of the Gas Commercial Department.

Peter Becker, whose name is written on the lower right-hand corner, made the inspection. The report shows that the burner depth of the range in use in this house was three inches. The proper depth is not more than $1\frac{1}{2}$ inches. The check marks in the adjoining columns indicate that the burner adjustment was poor; that burners were dirty and no damper was installed in the flue connections. Conse-

quently, the purchase of a new range was recommended.

The second item shows that hot plate was in use, connected with a hose. This being a violation of the rules of the Board of Insurance Underwriters, the owner was advised accordingly.

The third item indicates that a hot-water heater was used without a flue connection. The owner was advised to install one. Also, the adjustment was poor, which was remedied by the inspector.

The fourth item shows that a gas grate, which was improperly adjusted, was fixed.

According to the fifth item a space heater was being operated without proper flue connections. The owner was advised to remedy this.

The sixth item indicates that a coal furnace with gas burners was used. The Inspector, after a careful survey, recommended a specially designed gas furnace.

The last item shows that the house is being served with both gas and electricity. After an inspection this installation was approved by the inspector.

It has been exceedingly gratifying to the Home Service Division that in practically every instance, where defects were pointed out, the customers readily acceded to the recommendations for the installation of new equipment.

Improper adjustment of burners has been the chief cause leading to the failure to obtain the highest amount of service from the gas supply.

Why a Speakers' Bureau

(Continued from page 57)

have where the work has already been carried on. The object is to take advantage of each and every opportunity to tell the industrial gas story, to spread favorable industrial gas information to every nook and corner of the country so that not only among gas men but among the general public there will be the highest possible degree of enthusiasm for industrial gas. Through the co-operation of all the gas companies it will be possible to do this and we seek such co-operation.

COMMERCIAL SECTION

J. J. BURNS, Chairman

G. M. KARSHNER, Vice-Chairman

J. W. WEST, Jr., Secretary

Selling the Architect Simplified

Portfolio of the Architects' and Builders' Service Committee
Contains Especially Valuable and Pertinent Facts

By ROBERT B. MAHN

Chairman, Architects' and Builders' Service Committee, A. G. A.

HOME building is a very business-like proceeding, and every gas company becomes more or less a party to each new construction transaction in its territory. The proposed new house (or building of any kind) assuredly is an interesting matter to all gas companies.

The gas companies who have actual contact and active co-operation with the architects and builders in their territories can help spread the message that will ultimately bring more business through the meter. Eventually the home builders' problems will be given into the hands of the architect and builder to be worked out. They know the modern home must be planned and equipped so as to save time and labor. They know that the most efficient appliances must be provided.

Many questions involving the utility, advantage and cost of various types of gas appliances must be solved by the architect for his client. It is necessary for the gas man and the architect to cooperate. Part of the burden is lifted from the shoulders of the architect, and his efforts made successful through the gas company's architectural service work. The architects who may have at their fingers' ends data and information on gas equipment and piping, find their problems simplified, so far as gas is concerned. But these data and information must be designed in form and text to meet the architects' needs.

Last fall the Architects' and Builders' Service Committee of the Commercial

Section brought out just such a form and text, entitled—"Prize Plans of the American Gas Association Competition, with Data on Gas Service and Equipment in the Home." This portfolio is made up to conform with the American Institute of Architects' recommendations for architects' data, in a standard size folder, 8½" x 11". The contents answer the everyday problems in gas simply and clearly. The text is presented in an attractive and interesting manner, so that the architects' specifications, which constitute the vehicle for the bulk of appliance sales, may be expressed in terms clear and understandable.

Although a review of this file folder appeared in the October, 1926, *AMERICAN GAS ASSOCIATION MONTHLY*, a brief summary of the contents bears repeating here. Among the subjects covered are: planning proper size gas piping and domestic equipment, the construction and number of flues desirable, data on ranges, water heaters, house heating and auxiliary room heaters, together with a clear text on these appliances giving the necessary information of their use. The chapter on gas refrigeration alone makes this folder especially valuable today—in light of the development of this system. The sections devoted to house heating, garbage and waste disposal, economy of insulation, miscellaneous uses of gas in the home, together with a clear explanation of the rules of gas installation from the American Gas Safety Code, constitute a contribution to the gas industry.

Comparative Statistics

(Continued from page 16)

Probably the principal reasons for a slight difference with Curve No. 2 from 1913 on is due to the fact that changes in rates during the year are taken into consideration in the A. G. A. curve. Principally it should be noted that the curve for 100 cities based on the same methods of compilation gives an average price for gas practically ten cents higher than the curve for the 42 cities, principally due to the inclusion of more small situations which of necessity must charge more for the gas. The trend of the curves is remarkably close, and of course the amount of the average figure could be varied considerably by type of cities selected as representative or the number of cities included in the total.

As stated above these curves are included as a result of a number of requests from members and others, but it is suggested that in all such investigations the term "average price" be avoided and that only the trend curve be considered as in-

dicative of general changes that may occur in the rates.

FINANCIAL PUBLICATIONS OF THE GAS INDUSTRY

For the information of our members, a list of publications issued by financial houses affecting the gas industry is appended. The Association does not keep on hand a complete stock of these publications, but will be glad to refer members to their source where not indicated in the table.

REGARDING REPRINTS

ONCE AGAIN we wish to remind our contributors and readers that reprints of any material published in the American Gas Association MONTHLY may be obtained in accordance with the following scale:

100 copies, 1 page	\$2.00
Additional 100's	.40
100 copies, 2 pages	3.00
Additional 100's	.40
100 copies, 4 pages	7.00
Additional 100's	.75
100 copies, 8 pages	10.75
Additional 100's	1.05

BIBLIOGRAPHY OF FINANCIAL LITERATURE ON THE GAS INDUSTRY

November 26, 1926

Title	Date	Publisher	Address
American People and Public Utility Investments, The.	November, 1924	Hodenpyl, Hardy & Co.	14 Wall St., N. Y.
Century of Progress and Development, A.	1925	Harris, Forbes & Co.	Pine St. Corner William St., N. Y.
Desirability of Gas Company Securities as Investments, The Future of Gas Company Securities, The.	1924	Adolph Lewisohn & Sons	61 Broadway, N. Y.
Gas, An Essential Utility and An Opportunity.	1925	American Gas Ass'n	New York, N. Y.
Gas Companies, The.	(Now in course of preparation November, 1926)	Hambleton & Co. American Bankers Association	43 Exchange Place, N. Y. New York, N. Y.
Gas Industry, The.	October, 1925	Blodget & Company	120 Broadway, N. Y.
Gas, Our Slave of the Lamp.	1926	Rutter & Company	14 Wall St., N. Y.
Gas Securities.	August, 1920	Harris, Forbes & Co.	Pine St. Corner William St., N. Y.
Growing Industry, A.	1925	Utility Securities Co.	72 W. Adams St., Chicago, Illinois
Manufactured Gas Industry, The Opportunity in Household Improvements.	Oct. 26, 1926	Babson's Reports	Babson Park, Mass.
Possibilities of the Gas Industry.	October, 1925	Babson's Reports	Babson Park, Mass.
Public Utility Points.	October, 1925	Bonbright & Co.	25 Nassau St., N. Y.
Review of Public Utility Operations in 1925, A.	March, 1926	Union Trust Co. of Pittsburgh	Pittsburgh, Pa.

TECHNICAL SECTION

WALTER C. BECKJORD, Chairman

H. W. HARTMAN, Secretary

HARRY E. BATES, Vice-Chairman

A Revolutionary Improvement

(Continued from page 18)

in service a year and is still in first-class condition.

The main gear ring for the 11-ft. generator is ten feet in diameter, the teeth are 9-in. face, 4-in. pitch with the upper ends shrouded. They can deliver a force of over 100,000 lbs.

In the year that this machine has been in service, no tooth has broken on any gear, no shaft has broken and no bearing. One agitating beam was worn out at its upper outer corners, but this was largely due to lack of cooling water for occasional periods of a half hour or more during regular operation.

The ash and clinker removed by the standard manual methods contain 35 per cent carbon, while that removed by the self-clinkering base contain less than 20 per cent carbon, representing a saving of 1.6 per cent of the original fuel. Due to the lower carbon content of the ash and the lower temperature of the ash particles, the self-clinkering base effects a saving of 4550 pounds of coke per day in an 11-ft. set, or 1.24 lbs. per M cu.ft. of gas.

The cooling water required for the agitating beam and water jacket is 20,000 gallons per day, absorbing 14,000 B.t.u. per minute, which is equivalent to approximately one per cent of the heating value of the fuel charged. In plants which have been built abroad with different types of self-clinkering devices, the amount of cooling water is four times this amount.

In addition to the fuel saving, the self-clinkering base results in a better gas yield and a better quality of gas, by keeping a uniformly high and active fuel bed. It also effects a considerable saving in labor costs.

Table II is the distribution of generator labor chargeable to clinkering and

charging, under the old intermittent methods.

TABLE II

Cost of Clinkering, 11-ft. set, 300 days' operation per year	\$7,200 per year
Cost of Charging, 11-ft. set, 300 days' operation per year	675 per year
Total	\$7,875

With reference to operating data on the self-clinkering generator base: The machine built at the plant of the Chicago By-Product Coke Company was in a generator house where there are eight other 11-ft. machines. The demand for gas from this plant is such as to practically preclude the isolation of No. 1 set on which the device was placed, excepting for comparatively short intervals.

Water-gas operation and control is so standardized today from a standpoint of interpretation of data that the chance of error in interpretation is remote. This is particularly true of a water-gas generator where the variation due to clinkering is eliminated.

OPERATION WITH COKE

The machine was put into operation after having had the carbureter brick rechecked, on September 10th, 1926. Table III shows the record of a continuous run for 25 days.

On October 5th the machine was shut down and the bricks rechecked in carbureter. Upon close examination of the mechanical apparatus it was found to be in excellent and satisfactory condition. The machine was started again and ran sixteen days with the same results as the previous twenty-five days. It was then operated as a gas producer.

On many occasions it has been possible to secure for a few hours the operation of this machine alone. For example, on September 18th, the above report shows that the machine was operating normally and used 132,000 lbs. of fuel. During

TABLE III

Remarks	Date	Fuel Used	Number of Runs	Ash Removed
<i>Type of Coke Used:</i>	Sept. 10th	114,000 lbs.	267	7,280 lbs.
	" 11th	129,900 "	261	9,135 "
80% Kentucky Coal	" 12th	121,000 "	263	10,395 "
20% New River low	" 13th	126,000 "	256	10,640 "
	" 14th	131,600 "	248	11,760 "
<i>Average Analysis:</i>	" 15th	123,400 "	234	10,570 "
	" 16th	119,600 "	215	10,115 "
Moisture 1.5%	" 17th	133,900 "	230	10,250 "
Fixed Carbon 90.8%	" 18th	132,500 "	249	10,500 "
Volatile Matter 1.2%	" 19th	133,000 "	235	12,150 "
Ash 8.0%	" 20th	125,200 "	235	11,200 "
	" 21st	117,400 "	257	10,500 "
	" 22nd	123,600 "	252	9,800 "
	" 23rd	**95,900 "	202	9,520 "
	" 24th	113,600 "	249	9,485 "
	" 25th	118,100 "	274	10,955 "
	" 26th	112,600 "	263	9,345 "
	" 27th	112,700 "	264	9,870 "
	" 28th	117,900 "	264	11,165 "
	" 29th	118,800 "	263	10,865 "
	" 30th	117,900 "	261	11,165 "
	Oct. 1st	106,300 "	252	9,205 "
	" 2nd	117,900 "	261	11,165 "
	" 3rd	112,700 "	264	9,870 "
	" 4th	95,200 "	247	8,400 "

**Machine shut down 3 hours to change motor

eight hours of the twenty-four hour period all other machines were shut down. This machine produced 1,516,000 cu.ft. of 409 B.t.u. gas, using 1.44 gallons of oil per M cu.ft., so that the gas production for the twenty-four hour period could be deduced to be approximately 4,500,000 cu.ft. of gas, showing a fuel result of approximately 29 lbs. per M cu.ft. Assuming a gas production of 60 cu.ft. of oil gas per gallon of oil used, this would show, on the basis of blue gas, 31.7 lbs. per M cu.ft.

As a gas producer this machine handled up to seventy-five tons of coke per day, a very high capacity. It was decided, however, after six days' operation that the water jacket would have to be made higher in order to prevent clinker formation along the lower fire brick wall, when operated as a producer.

Tests were made on No. 1 machine operating on Elkhorn egg coal beginning August 2nd and running through until August 14th. During these tests the amount of fuel used per day amounted to approximately 100,000 pounds. The operation of the machine was, if anything, more successful with coal than with coke, the clinkering conditions indicating that the coal clinker was being handled more easily than coke clinker. The ash in this coal was approximately three per cent.

On August 11th it was possible to shut down all of the other machines in the house for a ten-hour test, the result of which shows 160,700 cu.ft. of gas made per hour, indicating that with automatic ash removal this machine could produce approximately 3,900,000 cu.ft. of gas over a 24-hour period. The amount of fuel used per M cu.ft. was 28 pounds, while 2.15 gallons of oil per M cu.ft. were used in the carbureter. The B.t.u. value of the gas was 423. Interpolating these results we find that the blue gas produced by the machine was using approximately 32.1 pounds of coal per 1,000 cu.ft. of gas. However, the B.t.u. value of the blue gas was only approximately 250 B.t.u., due to an over-use of the blow run. At the conclusion of this test it was decided by the various engineers and operators conducting the test, that so far as the use of coal is concerned, the following is true:

1. In using a hard lump bituminous coal with low ash, that a make of gas could be secured amounting to approximately 75 per cent of the capacity on coke, and also amounting to practically as much gas as is normally produced with a coke machine without the self-clinkering base.
2. That the fuel per 1,000 cubic feet would amount to practically the same as with coke.
3. That the self-clinkering device operated more easily on coal of this character than on coke.

Associations Affiliated with A. G. A.

K. R. Boyes, Secretary

Canadian Gas Association

Date of Affiliation—Mar. 25, 1919.
Pres.—J. J. Armstrong, Consumers Gas Co., Toronto, Ont.
Sec.-Tr.—G. W. Allen, 7 Astley Avenue, Toronto, Ont., 1927.

Empire State Gas and Electric Association

Date of Affiliation—Nov. 21, 1919.
Pres.—H. M. Brundage, Consolidated Gas Co. of New York, New York, N. Y.
Chairman Gas Section—J. E. Cooper, Utica Gas & Electric Co., Utica, N. Y.
Sec.—C. H. B. Chapin, Grand Central Terminal, New York, N. Y.
Conv., Lake Placid Club, Lake Placid, N. Y., Oct. 6 & 7, 1927.

Illinois Gas Association

Date of Affiliation—Mar. 19, 1919.
Pres.—W. A. Bertke, Illinois Power & Light Corp., East St. Louis, Ill.
Sec.-Tr.—R. V. Prather, 305 Illinois Mine Workers Bldg., Springfield, Ill.
Conv., Springfield, Ill., March 17 & 18, 1927.

Indiana Gas Association

Date of Affiliation—April 24, 1919.
Pres.—E. Van Arsdale, 1100 J. F. Wild Bldg., Indianapolis, Ind.
Sec.-Tr.—E. J. Burke, Room 1314, Peoples Gas Bldg., Chicago, Ill.
Conv., West Baden, Ind., June, 1927.

Michigan Gas Association

Date of Affiliation—Sept. 18, 1919.
Pres.—C. R. Henderson, Washtenaw Gas Co., Ann Arbor, Mich.
Sec.-Tr.—A. G. Schroeder, Grand Rapids Gas Light Co., Grand Rapids, Mich.
Conv., Grand Hotel, Mackinac Island, Mich., July 5, 6, 7, 1927.

Mid West Association

Date of Affiliation—May 21, 1919.
Pres.—Frank S. Edge, Peoples Light & Fuel Co., Grinnell, Iowa.
Sec.-Tr.—H. R. Sterrett, 351 Seventh St., Des Moines, Iowa.
Conv., St. Paul, Minn., April 21 & 22, 1927.

Missouri Association of Public Utilities

Date of Affiliation—June 18, 1920.
Pres.—F. S. Dewey, Kansas City Power and Light Co., Kansas City, Mo.
Sec.-Tr.—F. D. Beardslee, 315 N. 12th St., St. Louis, Mo.
Conv., 1927.

New England Gas Association

Pres.—F. C. Freeman, Providence Gas Co., Providence, R. I.
Acting Secretary: E. A. Taylor, 100 Weybosset St., Providence, R. I.
Pres. Operating Div.—G. Warren Stiles, Portland Gas Light Co., Portland, Me.
Sec.-Treas. Operating Div.—F. E. Drake, Lynn Gas & Electric Co., Lynn, Mass.

Eastern States Gas Conference

Date of Formation—April 11, 1923.
Pres.—S. P. Curtis, American Gas Co., Philadelphia, Pa.

Pres. Sales Div.—M. B. Webber, Marlboro-Hudson Gas Co., Boston, Mass.
Sec.-Treas. Sales Div.—J. H. Sumner, 719 Massachusetts Ave., Cambridge, Mass.
Pres. Industrial Div.—R. J. Phelan, Worcester Gas Light Co., Worcester, Mass.
Sec.-Treas. Industrial Div.—J. I. Winn, Jr., Fall River Gas Works Co., Fall River, Mass.
Conv., Bancroft Hotel, Worcester, Mass., Feb. 23 & 24, 1927.

New Jersey Gas Association

Date of Affiliation—April 25, 1919.
Pres.—L. N. Yetter, Atlantic City Gas Co., Atlantic City, N. J.
Sec.-Tr.—Louis Stoecker, Public Service Electric & Gas Co., Newark, N. J.
Conv., Bellevue-Stratford Hotel, Philadelphia, Pa., April 7, 1927.

Oklahoma Utilities Association

Date of Affiliation—September 16, 1925.
Pres.—J. A. Frates, Oklahoma Union Railway Co., Tulsa, Okla.
Mgr.—E. F. McKay, Oklahoma City, Okla.
Conv., Hutchins Hotel, Oklahoma City, Okla., March 8, 9, & 10, 1927.

Pacific Coast Gas Association

Date of Affiliation—Sept. 18, 1919.
Pres.—W. S. Yard, Pacific Gas & Electric Co., San Francisco, Calif.
Exec. Sec.—Clifford Johnstone, 447 Sutter St., San Francisco, Calif.
Conv., Santa Cruz, Calif., Sept., 1927.

Pennsylvania Gas Association

Date of Affiliation—April 10, 1919.
Pres.—Allyn C. Taylor, Consumers Gas Co., Reading, Pa.
Sec.-Tr.—Geo. L. Cullen, Harrisburg Gas Co., Harrisburg, Pa.
Conv., Bellevue-Stratford Hotel, Philadelphia, Pa., April 6, 1927.

Southern Gas Association

Date of Affiliation—May 20, 1919.
Pres.—A. E. Merchant, New Orleans Public Service, Inc., New Orleans, La.
Sec.-Tr.—J. P. Connolly, 141 Meeting St., Charleston, S. C.
Conv., Atlanta, Ga., April 19, 20, 21, & 22, 1927.

Southwestern Public Service Association

Date of Affiliation—September 26, 1923.
Pres.—H. E. Borton, Mineral Wells Electric Co., Dallas, Texas.
Chairman Gas Section—C. E. Fletcher, Fort Worth Gas Co., Fort Worth, Texas.
Sec.—E. N. Willis, 403 Slaughter Bldg., Dallas, Texas.
Conv., Hotel Roosevelt, New Orleans, La., April 26-29, 1927.

Wisconsin Utilities Association

Date of Affiliation—March 25, 1919.
Pres.—John St. John, Madison Gas & Electric Co., Madison, Wisc.
Exec.-Sec.—J. N. Cadby, 445 Washington Bldg., Madison, Wisc.
Conv., 1927.

Geographic Divisions

Sec.-Tr.—J. C. Smith, Consumers Gas Co., Reading, Pa.
Conv., Bellevue-Stratford Hotel, Philadelphia, Pa., April 7 & 8, 1927.

Ninth Annual Convention of the American Gas Association
Chicago, Ill. Stevens Hotel Oct. 10-14, 1927

Employment Bureau

(Address All Communications to Key Number)

SERVICES REQUIRED

ENGINEER—Large operating company desires the services of an engineer with experience in the application of gas and the selling of industrial gas appliances. State age, past experience and salary expected. Address A. G. A.

Key No. 072.

WANTED by large gas company in middle west, salesman for industrial gas appliances. Address A. G. A.

Key No. 073.

WANTED—A fast growing Gas Syndicate operating a number of Gas Companies desires the services of an experienced gas appliance solicitor. Only trained and experienced men with good references need apply. A good opportunity for a live, wide-awake salesman. Address A. G. A.

Key No. 079.

SALESMEN—Large Public Utility Company operating in Central New York and many other states, desires to employ several securities salesmen to sell company securities. Excellent opportunity. State salary, age, experience, married or single. Address A. G. A.

Key No. 080.

INDUSTRIAL GAS SALES REPRESENTATIVE:

Gas company in a Middle Atlantic State has an opening for a technical college graduate, with fundamental knowledge of application and combustion of various fuels, to sell gas for industrial uses. Must be capable of making plant surveys of heat applications. State age, education, experience and salary desired. Address A. G. A.

Key No. 085.

INDUSTRIAL GAS SALESMAN—Must have sufficient engineering experience and ability to make estimates, recommendations and demonstrations; and also must have that quality of salesmanship which can bring about the signing of contracts. Company operates in a city of approximately 200,000 inhabitants. Address A. G. A.

Key No. 088.

A NEW GAS APPLIANCE COMPANY desires to employ Gas Appliance Salesman who has had considerable experience in selling Water Heaters, boilers, etc. State age, salary expected, experience. Address A. G. A.

Key No. 089.

SALESMAN—Chiefly for gas-fired steam radiators, also other gas appliances to work in New York City. One acquainted with plumbing and heating trade preferred. Salary and commission basis. Address A. G. A.

Key No. 094.

A PROGRESSIVE Gas Company in Mass. has an opening in its Industrial Gas Engineering Department for a Technical College Graduate to sell gas for industrial uses. State age, education, experience, and salary desired. A fine opportunity for the right young man. Address A. G. A.

Key No. 095.

SHOP FOREMAN—Wanted by Company operating in the Metropolitan District of New York City. 25,000 Meters. Must be thoroughly familiar with all classes of work on consumers' premises, industrial appliances, routing and transportation. Give age, experience and compensation desired. References will be considered confidential if requested. Address A. G. A.

Key No. 097.

CHEMICAL ENGINEER with some experience in the manufacture of blue water gas wanted by Eastern manufacturer. In replying please give full details of experience, education, personal qualifications, availability and salary desired. Address A. G. A.

Key No. 098.

EASTERN PUBLIC UTILITY company offers unusual opportunity for a man in their trades promotional department. Prerequisites are general

knowledge of gas distribution and utilization with special reference to house-piping layouts; acquaintanceship with building trades methods; must be able to interpret blue prints and execute them if necessary; must have personality which will make contacts with architects and contractors productive. Address A. G. A.

Key No. 099.

SERVICES OFFERED

WANTED—Am open for position as appliance salesman with appliance manufacturer, experience covers over fifteen years in the sale of gas ranges, automatic water heater and heating appliances, or as manager of appliance sales department with a gas operating company, experience includes executive and technical training. Married. All references. Address A. G. A.

Key No. 205.

WANTED—Position as Gas Engineer or Superintendent of property serving 30,000 or more meters. Fifteen years' experience in high and low pressure distribution, coal and water gas production. Address A. G. A.

Key No. 211.

YOUNG MARRIED MAN—Thirty-one years old. Thoroughly experienced in every phase of selling Gas and Electric merchandise through Public Service companies by the Meter-Reader-Salesman plan of selling, desires position with Public Utility Company. Can make a real success of your merchandising department under this plan. Have also had three years' road experience selling electrical merchandise, organizing sales crews for dealers, etc. Address A. G. A.

Key No. 216.

TECHNICAL MAN now employed as superintendent and industrial gas engineer desires new location. Thirty-six years of age. Fourteen years' experience in coal and water gas manufacture, sales and distribution. Services available upon reasonable notice to present employer. Address A. G. A.

Key No. 217.

MANAGER OF GAS PROPERTY—with twenty-five years experience in all branches of business, specialist in building up small companies, desires to make change in position. Address A. G. A.

Key No. 218.

AGGRESSIVE COMMERCIAL MANAGER—34 years of age, available October or November. Thoroughly familiar, Industrial, Commercial and Domestic Sales Promotion. Address A. G. A.

Key No. 220.

COMBUSTION SALES ENGINEER with executive ability to organize and operate an efficient industrial sales department, capable of putting over large industrial operations. Thorough knowledge of solid, liquid and gaseous fuels from a practical and theoretical standpoint, having made surveys in over one thousand industries during the past seventeen years of industrial plant engineering. Broad experience in a very extensive variety of heating operations including the design of large heating furnaces and gas burner equipment. Also contributed a great deal to the development of house-heating, able to create splendid public relations. Technical graduate. High class references. Address A. G. A.

Key No. 221.

HOME ECONOMICS UNIVERSITY GRADUATE desires a position as a Home Service Director. Has had experience in organizing and directing such a department with a Public Utility company. Address A. G. A.

Key No. 222.

ACCOUNTANT and Office Manager with wide experience in management, purchasing and all office details. Address A. G. A.

Key No. 223.

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